EMC Test Report

Product Name: Base Band Unit

Product Model: BBU3910
BBU3910M

Report Number: SYBH(E)07809543EA

Reliability Laboratory of Huawei Technologies Co., Ltd.

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Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Product Name:	Base Band Unit
Product Model:	BBU3910 BBU3910M

Date of Receipt Test Item:	2021-07-12
Start Date of Test:	2021-07-13
End Date of Test:	2021-07-15

Test Result: Pass

Approved by Senior Engineer:	2021-07-23	Yang Xinglei	Yang Xinglei
	Date	Name	Signature

Prepared by:	2021-07-22	Xue Haifeng	Xue Haifeng
	Date	Name	Signature

Modification Record

No.	Last Report No.	Modification Description
1	N/A	First report
2	SYBH(E)01613248EA	Update the board version of UPEU and Update the Board list, test configuration and Test Connection, refer to section 3.3, 4.3,4.4
3	SYBH(E)01736015EA	Update the test configuration and Connection, refer to section 4.3,4.4
4	SYBH(E)01878597EA	Add three boards WD22GTMUc/ WD23UMPT/ WD22UCCU and add two test configurations TC5, TC6, refer to section 3.3, 4.3
5	SYBH(E)01906219EA	Add five boards WD23UBBPd9 / WD23UBBPd / WD22UBBPdc / WD22UBBPdd / WD22LMBP and update the Board list, test configurations TC1&TC2&TC4&TC5, refer to section 3.3, 4.3
6	SYBH(E)02178887EA	Add two boards UBBPE / UMPTE and update the Board list, test configuration TC7, refer to section 3.3, 4.3
7	SYBH(E)02360079EA	Add new test configurations TC8-TC9, refer to section 3.3, 4.3
8	SYBH(E)02401168EA	Update the test level and test items of TC2 to satisfy EN50121-4.
9	SYBH(E)02427067EA	Add four boards WD26UBBPd5 / WD26UBBPd6 / WD22UBBPen / WD24UMPTb4 and update the board list, refer to section 3.3, 4.3
10	SYBH(E)02650845EA	Add new board UBBPem and new test configuration TC10, refer to section 3.3, 4.3
11	SYBH(E) 02737379EA	Add two boards WD22LBBPD5 / WD21LCOP and update the board list, refer to section 3.3, 4.3
12	SYBH(E)02910872EA	Add test of radiated immunity from 2.7G-6G, and update the test standards, refer to the section 1.1, 7.2
13	SYBH(E)03025162EA-1	Add five boards MERCa08, MERCa03, MERCa01, MERCa07, UMPTb3, new test configurations TC11-TC14
14	SYBH(E)03114156EA-1	Add UBBPex board, new test configuration TC15, refer to section 3.3, 4.3
15	SYBH(E)03194350EA	Add WD85MERCa05, WD85MERCa20 boards, new test configurations TC16-TC17, refer to section 3.3, 4.3
16	SYBH(E)03895800EA	Add some new boards and one test configuration, refer to section 3.3, 4.3, and delete the special test level of TC2 in the last report
17	SYBH(E)03981097EA	Add some new boards, refer to section 3.3
18	SYBH(E)04373898EA	Add new board WD22UBBPf3 and new test configuration TC19, refer to section 3.3, 4.3
19	SYBH(E)04747132EA	Add a new board WD23UBBPex2, refer to section 3.3
20	SYBH(E)04809961EA	Add new boards WD26UBBPe1/ WD26UBBPe3/ WD24UBBPe1/ WD24UBBPe3/ WD22UBBPe10/ WD22UBBPe11/ WD22UBBPe16/ WD26UMPTe1/ WD24UMPTe1/ WD26UMPTe4/

		WD24UMPTe4/ WD26UMPTe5/ WD24UMPTe5/ WD24UBFD/ WD24UPEG/ WD2E1FANE/ WD2MUPEUD2, and a new test configuration TC20, refer to section 3.3,4.3
21	SYBH(E)04917899EA	Add new boards WD22UMPTg1/ WD22UMPTg2/ WD22UMPTg3/ WD22UBBPg2/ WD22UBBPg3/ WD22UBBPg4/ WD22UBBPg2a/ WD22UBBPg3a, and a new test configuration TC21, refer to section 3.3,4.3
22	SYBH(E)04937003EA	Add new boards WD24UMPTg5/ WD24UMPTg1/ WD22UMPTg1/ WD24UMPTg2/ WD22UMPTg2/ WD22UMPTg2BT/ WD24UMPTg3/ WD22UMPTg3/ WD24UMPTgs/ WD26UBBPg2ac/ WD22UBBPg2/ WD22UBBPg2a/ WD22UBBPg3/ WD22UBBPg3a/ WD22UBBPg3BT/ WD22UBBPg4/ WD27UBBPg3c/ WD27UBBPg2ac/ WD28UBBPe/ WD28UBBPe1/ WD22LBBPD5/ QWL1WBBPf5/ WD22UBBPe1/ WD22UBBPe2/ WD22UBBPe3/ WD22UBBPe4/ WD22UMPTe1/ WD22UMPTe2/ WD22UMPTes, and a new test configuration TC22, refer to section 3.3,4.3
23	SYBH(E)05448861EA	Add new boards WD24UBBPg3/ WD24UBBPg2/ WD24UBBPg3a/ WD24UBBPg2a/ WD28UBBPg3c/ WD28UBBPg2ac/ WD26UBBPg3TF/ WD22UBBPg3TF/ WD26UBBPg2aTF/ WD22UBBPg2aTF/ WD2DUBPG2AUK/ WD2DUBBPG2UK/ WD26UMPTg2tf/ WD26UMPTg2tf/ WD24UBBPe6c/ WD26UBBPe6c/ WD24UBBPea/ WD26UBBPea/ WD23UBBPeb/ WD23UBBPex2/ QWL1WBBPf6/ WD22UBBPe5/ WD22UBBPe6/ WD22UBBPea/ WD22UBBPeas/ WD25UMPTe5/ WD23UMPTe/ WD23UMPTe4/ WD23UMPTe5/ WD21USCUb16/ WD23USCUb11/ WD21USCUb16/ WD23UBBPg1/ WD23UBBPg1/ WD22UBBPe18/ WD22UBBPe18/ WD26UBBPg2a/ WD26UBBPg2, and new test configurations TC23, TC24, refer to section 3.3,4.3
24	SYBH(E)05580327EA	Add new boards WD24UBBPg4c2/ WD24UBBPg3TF/ WD2DUBBPG2C0/ WD24UMPTg5/ WD24UMPTg1/ WD24UMPTg2/ WD24UMPTg3/ WD24UMPTgs/ WD23UMPTe5c/ WD23USCUb11, and new test configurations TC25, TC26, refer to section 3.3,4.3
25	SYBH(E)05774073EA	Add new boards WD24UMPTga1/ WD24UMPTga2/ WD24UMPTga5/ WD24UMPTga3/ WD2DUMPTGA10/ WD2DUMPTGA11/ WD2DUMPTGA20/ WD2DUMPTGA21/ WD2DUMPTGA50/ WD2DUMPTGA30/ WD2DUMPTGA31/ WD21USCUb18/ WD26UMPTg5/ WD26UMPTg3/

		WD24UMPTe1/ WD24UMPTe3/ WD24UMPTe4/ WD2DUBBPG3A0/ WD2DUBBPG3L0, and new test configuration TC27, refer to section 3.3,4.3
26	SYBH(E)05931901EA	Add new boards WD24UBBPg1/ WD2DUBBPG1C0/ WD29UBBPg1/ WD24UMPTg2tf/ WD2DUMPTG2TH/ WD23UMPTe1c/ WD23UMPTe2c/ WD24UBBPg4, and new test configuration TC28, refer to section 3.3,4.3
27	SYBH(E)06210463EA	Add new boards WD25UBBPg1/ WD2DUBBPG1BT, refer to section 3.3
28	SYBH(E)06486320EA	Add new boards WD2CUBBPg2/ WD29UBBPg1/ WD27UBBPg1/ WD28UBBPg1/ WD29UBBPe18/ WD2DUBBPG3B0/ QWL1WBBPf5/ WD23UMPTe2/ WD23UMPTe3, and new test configuration TC29, refer to section 3.3,4.3
29	SYBH(E)06816875EA	Add new boards WD29UMPTg1/ WD29UMPTg2/ WD29UMPTg3/ WD29UMPTg5/ WD2BUBBPg3c/ WD2BUBBPg3/ WD2BUBBPg2ac/ WD2BUBBPg2a/ WD2BUBBPg2c/ WD2BUBBPg2/ WD2DUMPTE180/ WD2DUMPTE190, and new test configuration TC30,refer to section 3.3, 4.3
30	SYBH(E)06990187EA	Add new boards WD22UBBPg1a/ WD2DUBBPG1A0/ WD25UMPTga1/ WD25UMPTga2/ WD25UMPTga3/ WD25UMPTga5, and new test configuration TC31,refer to section 3.3, 4.3
31	SYBH(E)07136122EA	Add a new model BBU3910M and new boards WD2FUBBPg3/ WD2GUBBPg3/ WD2FUBBPg2a/ WD2GUBBPg2a/ WD2HUBBPg2a/ WD2JUBBPg2a/ WD2FUBBPg2/ WD2GUBBPg2/ WD2KUBBPg1a/ WD2LUBBPg1a, and new test configuration TC32,refer to section 3.3, 4.3
32	SYBH(E)07246694EA	Add new boards WD2JUBBPg2/ WD2HUBBPg2/ WD2JUBBPg1a/ WD2HUBBPg1a/ WD2AUBBPe3/ WD2BUBBPe3, and new test configuration TC33, refer to section 3.3, 4.3
33	SYBH(E)07373067EA	Add new boards WD28UMPTe5/ WD28UMPTe1/ WD28UMPTe2/ WD28UMPTe3, and new test configuration TC34, refer to section 3.3, 4.3.
34	SYBH(E)07538979EA	Add new boards WD2MUBBPg1a/ WD2NUBBPg1a/ WD2PUBBPg1a/ WD2MUBBPg2/ WD2NUBBPg2/ WD2PUBBPg2/ WD2MUBBPg2a/ WD2NUBBPg2a/ WD2PUBBPg2a, and new test configuration TC35, refer to section 3.3, 4.3.

35	SYBH(E)07583775EA	Add new boards WD29UMPTb4/ WD28UMPTb4/ WD2YUBBPg2a/ WD2LUBBPg2a/ WD2KUBBPg2a/ WD2OUBBPg2a/ WD2IUBBPg2a/ WD2CUBBPg2a, and new test configuration TC36, refer to section 3.3, 4.3.
36	SYBH(E)07757760EA	Add new boards WD2DUMPTg1/ WD2DUMPTg2/ WD2DUMPTg3/ WD2DUMPTg5/ WD2EUMPTg5, and new test configuration TC37, refer to section 3.3, 4.3.

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1 General Information

1.1 Applied Standard

Applied Product Standard:	EN 55032:2015 EN 55032:2015/A11:2020* CISPR 32:2015 ETSI EN 301 489-1 V2.2.3:2019* ETSI EN 301 489-19 V2.1.1:2019* ETSI EN 301 489-50 V2.2.1:2019* VCCI-CISPR 32:2016 ICES-003 Issue 6: 2016 (updated April 2019) AS/NZS CISPR 32:2015
Test Methods:	IEC 61000-4-2:2008 IEC 61000-4-3:2010 IEC 61000-4-4:2012 IEC 61000-4-5:2014+A1:2017 IEC 61000-4-6:2013 IEC 61000-4-8:2009 IEC 61000-4-29:2000

Note: For these standards marked with *, the versions have not been accredited by CNAS.

1.2 Test Location

Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	No.2222,Xin Jinqiao Road, Pudong New Area, Shanghai, 201206, P.R.C

1.3 Test Environment Condition

Ambient Temperature:	20–25°C
Relative Humidity:	45–55%
Atmospheric Pressure:	101kPa

2 Summary of Test Results

Table 1 Test summary

EUT Classification： Radio Equipment					
Test Items	**Test Configuration**	**Limit or Performance Criteria**		**Test Result**	**Location**
Radiated Emissions Enclosure Port	TC1~TC37	Class B		Pass	Location1
Conducted Emissions ☒DC Power Port ☐AC Power Port ☒Wired network Ports ☒Antenna Port	TC1~TC37	Class B		Pass	Location1
Electrostatic Discharge Enclosure Port	TC1~TC37	Performance Criterion for Transient Phenomena; &Refer to section 5.3;		Pass	Location1
Immunity to Radiated Electromagnetic Fields Enclosure Port	TC1~TC37	Performance Criterion for Continuous Phenomena; &Refer to section 5.3;		Pass	Location1
Immunity to Electrical Fast Transient Bursts ☐Outdoor Signal Port ☒Indoor Signal Port ☐AC Power Port ☒DC Power Port	TC1~TC37	Performance Criterion for Transient Phenomena; &Refer to section 5.3;		Pass	Location1
Immunity to Surges ☐Outdoor Signal Port ☒Indoor Signal Port ☐AC Power Port ☒DC Power Port	TC1~TC37	Performance Criterion for Transient Phenomena; &Refer to section 5.3;		Pass	Location1
Immunity to Continuous Conducted Interference ☐Outdoor Signal Port ☒Indoor Signal Port ☐AC Power Port ☒DC Power Port	TC1~TC37	Performance Criterion for Continuous Phenomena; &Refer to section 5.3;		Pass	Location1
Immunity to Power Frequency Magnetic Field Enclosure Port	TC1~TC37	Performance Criterion for Continuous Phenomena; &Refer to section 5.3;		NT*	Location1
Immunity to Voltage dips and Short Interruption and Voltage Variation DC Power Port	TC1~TC37	Refer to section 5.4;	☐With battery ☒Without battery	Pass	Location1
Note: 1. Measurement taken is within the uncertainty of measurement system. 2. TC is short for test configuration 3. NT is short for not tested. The equipment under test (EUT) has been exempted from immunity tests for power frequency of magnetic fields because the device does not contain any components that are susceptible to magnetic fields. 4. ☒ The item has been tested; ☐ The item has not been tested or not applicable.					

3 Equipment Specification

3.1 General Description

The BBU3910 is an indoor baseband unit. It provides physical interfaces for connection with the BSC and RRU. It performs centralized management (OM and Signalling processing) of the entire base station system and provides reference clock for the system.
The hardware of BBU3910M is same as BBU3910, the difference between them is only the model name, in this report we choose BBU3910 to do the test.

3.2 Specification

Table 2 Main equipment specification

Rated Input Voltage	⎓ -48 V
Rated Power (W)	1070 W
Dimensions(W x D x H)	442 mm (W) x 310 mm (D) x 86.1 mm (H)
Weight (kg)	⩽15kg
Receive frequency(MHz)	1559 MHz-1610 MHz (GPS, BDS, GLO, GAL)
Frequency of the Internal Source (MHz/GHz)	3.84MHz;15.36MHz; 25MHz; 50MHz; 61.44MHz; 122.88 MHz; 125MHz; 10.1376GHz; 10.3125GHz; 25.78125GHz

Figure 1.EUT appearance

3.3 Board and Subassembly

Table 3 Board list

Board Name	Hardware Version	Description
WD22USCUB11	VER.D	HERT BBU,WD22USCUB11,Universal Satellite card and Clock Unit type A1(4HP),Without Satellite card,1*1
WD22USCUB12	VER.D	HERT BBU,WD22USCUB12,Universal Satellite card and Clock Unit type A2(4HP),with RT Satellite Card,1*1
WD22USCUB13	VER.D	HERT BBU,WD22USCUB13,Universal Satellite card and Clock Unit type A3(4HP),with RT_SMT Satellite Card,1*1
WD22USCUB14	VER.D	HERT BBU,WD22USCUB14,Universal Satellite card and Clock Unit type A2(4HP),with UBLOX Satellite Card,1*1
WD22USCUB21	VER.D	HERT BBU,WD22USCUB21,Universal Satellite card and Clock Unit type B1(8HP),Without K161 Satellite Card(With Install Accessory),1*1
WD22USCUB22	VER.D	HERT BBU,WD22USCUB22,Universal Satellite card and Clock Unit type B2(8HP),Without Navior-24s Satellite Card(With Install Accessory),1*1
WD22USCUB23	VER.D	HERT BBU,WD22USCUB23,Universal Satellite card and Clock Unit type B2(8HP),Without Navior-24s Satellite Card(With Install Accessory),1*1
WD2M1UEIU	VER.E	Functional Module, HERT BBU,WD2M1UEIU,Universal Environment Interface control Unit
WD22UTRPc	VER.B	Universal Transmission Resource Processing Unit (4 Electrical FE/GE & 2 Optical FE/GE)
WD22UTRPa	VER.A	Manufactured Board, HERT BBU,WD22UTRPa,Universal Extension Transmission Processing Unit type a(8E1/T1)
WD22UBRIb	VER.A	HERT BBU,WD22UBRIb, Universal Base Band Radio Interface Board type B
WD22UMPTb1	VER.B	BBU3910-WD22UMPTb1-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface
WD22UMPTb2	VER.B	BBU3910-WD22UMPTb2-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface, With Ublox Card
WD22UMPTb5	VER.B	BBU3910-WD22UMPTb5-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface, With Ublox Card
WD23UMPTb9	VER.B	BBU3910-WD23UMPTb9-Universal Main Processing & Transmission unit with 2FE/GE interface, With GNSS Card
WD22UBBPd1	VER.B	Manufactured Board,BBU3910,WD22UBBPd1,Baseband Processing and Interface Unit ,1*1
WD22UBBPd2	VER.B	Manufactured Board,BBU3910,WD22UBBPd2,Baseband Processing and Interface Unit ,1*1
WD22UBBPd3	VER.B	Manufactured Board,BBU3910,WD22UBBPd3,Baseband Processing and Interface Unit ,1*1
WD22UBBPd4	VER.B	Manufactured Board,BBU3910,WD22UBBPd4,Baseband Processing and Interface Unit ,1*1
WD22UBBPd5	VER.B	Manufactured Board,BBU3910,WD22UBBPd5,Baseband Processing and Interface Unit ,1*1
WD22UBBPd6	VER.B	Manufactured Board,BBU3910,WD22UBBPd6,Baseband Processing and Interface Unit ,1*1
WD22UBBPd8	VER.B	Manufactured Board,BBU3910,WD22UBBPd8,Baseband Processing and Interface Unit ,1*1

WD22UBBPd9	VER.B	Manufactured Board,BBU3910,WD22UBBPd9,Baseband Processing and Interface Unit ,1*1
WD22UBBPd9s	VER.B	Manufactured Board,BBU3910,WD22UBBPd9s,Baseband Processing and Interface Unit,1*1
WD22UBBPd1	VER.C	Manufactured Board,BBU3900,WD22UBBPd1,Baseband Processing and Interface Unit ,1*1
WD22UBBPd2	VER.C	Manufactured Board,BBU3900,WD22UBBPd2,Baseband Processing and Interface Unit ,1*1
WD22UBBPd3	VER.C	Manufactured Board,BBU3900,WD22UBBPd3,Baseband Processing and Interface Unit ,1*1
WD22UBBPd4	VER.C	Manufactured Board,BBU3900,WD22UBBPd4,Baseband Processing and Interface Unit ,1*1
WD22UBBPd5	VER.C	Manufactured Board,BBU3900,WD22UBBPd5,Baseband Processing and Interface Unit ,1*1
WD22UBBPd6	VER.C	Manufactured Board,BBU3900,WD22UBBPd6,Baseband Processing and Interface Unit ,1*1
WD22UBBPd8	VER.C	Manufactured Board,BBU3900,WD22UBBPd8,Baseband Processing and Interface Unit ,1*1
WD22UBBPd9	VER.C	Manufactured Board,BBU3900,WD22UBBPd9,Baseband Processing and Interface Unit ,1*1
WD22UBBPd9s	VER.C	Manufactured Board,BBU3900,WD22UBBPd9s,Baseband Processing and Interface Unit,1*1
WD2E1FAND	VER.A	Fan Tray Assembly, HERT BBU,WD2E1FAND,2U Fan Module,FanCfgP32S2328
WD2MUPEUD	03021KBJ VER.C 03022WSP VER.B	HERT BBU WD2MUPEUD -48V Power and Environment interface Unit
WD2MUPEUD2	03021KBJ VER.C 03022WSP VER.B	HERT BBU WD2MUPEUD2 -48V Power and Environment interface Unit
WD23UBBPd1	VER.C	Manufactured Board,BBU3900,WD23UBBPd1,Baseband Processing and Interface Unit ,1*1
WD23UBBPd2	VER.C	Manufactured Board,BBU3900,WD23UBBPd2,Baseband Processing and Interface Unit ,1*1
WD23UBBPd3	VER.C	Manufactured Board,BBU3900,WD23UBBPd3,Baseband Processing and Interface Unit ,1*1
WD23UBBPd4	VER.C	Manufactured Board,BBU3900,WD23UBBPd4,Baseband Processing and Interface Unit ,1*1
WD23UBBPd8	VER.C	Manufactured Board,BBU3900,WD23UBBPd8,Baseband Processing and Interface Unit ,1*1
WD23UBBPd9	VER.C	Manufactured Board,BBU3900,WD23UBBPd9,Baseband Processing and Interface Unit,1*1
WD23UBBPd	VER.D	Manufactured Board,BBU3900,WD23UBBPd,Baseband Processing and Interface Unit,1*1
WD22UBBPda	VER.B	Manufactured Board,BBU3900,WD22UBBPda,Baseband Processing and Interface Unit ,1*1
WD22UBBPdb	VER.B	Manufactured Board,BBU3900,WD22UBBPdb,Baseband Processing and Interface Unit ,1*1

WD22UBBPdc	VER.B	Manufactured Board,BBU3900,WD22UBBPdc,Baseband Processing and Interface Unit,1*1
WD22UBBPdd	VER.B	Manufactured Board,BBU3900,WD22UBBPdd,Baseband Processing and Interface Unit,1*1
WD22LMBP	VER.C	Manufactured Board,BBU3900,LTE-M,Baseband Processing and Inte rface Unit,1*1
WD2E1FANE	VER.A	Function Module, HERT BBU,WD2E1FANE,2U FAN Module,FanCfg P32S2328
WD22UMPTs	VER.A	BBU3900-WD22UMPTs-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface-With LMA
WD22UMPTs2	VER.A	BBU3900-WD22UMPTs2-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface-With LMA
WD22LBBPD2	VER.D	BBU3900,WD22LBBPD2,LTE Baseband Processing Unit D (3 cell, 4 T4R) ,1*1
WD2MUPEUD	/	HERT BBU WD2MUPEUD -48V Power and Environment interface Unit WD22UEICB(03021KBJ) VER.C WD22UPEF(03021KHJ) VER.C
WD2MUPEUD2	/	HERT BBU WD2MUPEUD2 -48V Power and Environment interface Unit WD22UEICB(03021KBJ) VER.C WD22UPEF(03021KHJ) VER.C
WD22GTMUc	VER.B	BBU3910- WD22GTMUC- GSM transmission and timing and management unit with 4E1 and 2FE/GE interface
WD23UMPT	VER.C	BBU3910-WD23UMPT-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface
WD23UMPTb4	VER.C	BBU3910-WD23UMPTb4-Universal Main Processing & Transmission unit with 2FE/GE interface, With Ublox Card
WD22UCCU	VER.A	Manufactured Board, HERT BBU,WD22UCCU,Universal inter-Connection Combo Unit,1*1
WD22UMPTe	VER.B	Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface
WD22UMPTe4	VER.B	Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and GNSS Card
WD22UMPTe5	VER.B	Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card
WD22UMPTes	VER.B	Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface
WD22UMPTe1	VER.B	Universal Main Processing & Transmission unit e1 with 2GE and 2XGE interface
WD22UMPTe2	VER.B	Universal Main Processing & Transmission unit e2 with 2GE and 2XGE interface, With GNSS Card
WD22UMPTe3	VER.B	Universal Main Processing & Transmission unit e3 with 2GE and 2XGE interface, With BDS Multi Mode Card
WD22UBBPe1	VER.A	Manufactured Board, HERT BBU,WD22UBBPe1, Baseband Processing and Interface Unit,1*1
WD22UBBPe2	VER.A	Manufactured Board, HERT BBU,WD22UBBPe2, Baseband Processing and Interface Unit,1*1
WD22UBBPe3	VER.A	Manufactured Board, HERT BBU,WD22UBBPe3, Baseband Processing and Interface Unit,1*1
WD22UBBPe4	VER.A	Manufactured Board, HERT BBU,WD22UBBPe4, Baseband Processing and Interface Unit,1*1

WD22UBBPe5	VER.A	Manufactured Board, HERT BBU, WD22UBBPe5, Baseband Processing and Interface Unit,1*1
WD22UBBPe6	VER.A	Manufactured Board, HERT BBU, WD22UBBPe6, Baseband Processing and Interface Unit,1*1
WD22UBBPe8	VER.A	Manufactured Board, HERT BBU, WD22UBBPe8, Baseband Processing and Interface Unit,1*1
WD22UBBPe9	VER.A	Manufactured Board, HERT BBU, WD22UBBPe9, Baseband Processing and Interface Unit,1*1
WD22UBBPe9s	VER.A	Manufactured Board, HERT BBU, WD22UBBPe9s, Baseband Processing and Interface Unit,1*1
WD22UBBPea	VER.A	Manufactured Board, HERT BBU, WD22UBBPea, Baseband Processing and Interface Unit,1*1
WD22UBBPeas	VER.A	Manufactured Board, HERT BBU, WD22UBBPeas, Baseband Processing and Interface Unit,1*1
WD21UBBPei	VER.A	Manufactured Board, HERT BBU,WD21UBBPei,Baseband Processing and Interface Unit,1*1
WD21UBBPei2	VER.A	Manufactured Board, HERT BBU,WD21UBBPei2,Baseband Processing and Interface Unit,1*1
WD21UBBPep	VER.A	Manufactured Board, HERT BBU,WD21UBBPep,Baseband Processing and Interface Unit,1*1
WD26UBBPd5	VER.D	Manufactured Board, HERT BBU,WD26UBBPd5,Baseband Processing and Interface Unit,1*1
WD26UBBPd6	VER.D	Manufactured Board,BBU3900,WD26UBBPd6,Baseband Processing and Interface Unit,1*1
WD22UBBPen	VER.A	Finished Board Unit, HERT BBU,WD22UBBPen,Baseband Processing and Interface Unit
WD24UMPTb4	VER.B	Manufactured Board, HERT BBU,WD24UMPTb4,Universal Main Processing & Transmission unit with 2FE/GE interface and GNSS Card,1*1
WD22UBBPem	VER.A	Manufactured Board, HERT BBU,WD22UBBPem,Baseband Processing and Interface Unit,1*1
WD22LBBPD5	VER.A	Manufactured Board, HERT BBU,WD22LBBPD5,LTE Baseband Processing and Interface Unit D5
WD21LCOP	VER.B	Manufactured Board, HERT BBU,WD21LCOP,LTE Cooperation process board
WD2E2FANE	VER.B	Function Module, HERT BBU,WD2E2FANE,2U FAN Module,FanCfgP32S2328
WD2E3FANE	VER.A	Function Module, HERT BBU,WD2E3FANE,2U FAN Module,FanCfgP32S2328(corrosion-resistant)
WD85MERCa08	VER.A	Manufactured Board, HERT BBU,WD85MERCa08,Multi Extended Radio Frequency Card-6T6R,900M,1*1
WD85MERCa03	VER.A	Manufactured Board, HERT BBU,WD85MERCa03,Multi Extended Radio Frequency Card-6T6R,1800M,1*1
WD85MERCa01	VER.A	Manufactured Board, HERT BBU,WD85MERCa01,Multi Extended Radio Frequency Card-6T6R,2100M,1*1
WD85MERCa07	VER.A	Manufactured Board, HERT BBU,WD85MERCa07,Multi Extended Radio Frequency Card-6T6R,2600M,1*1
WD23UMPTb3	VER.C	BBU3900-WD23UMPTb3-Universal Main Processing & Transmission unit with 2FE/GE interface
WD22UBBPex	VER.A	Manufactured Board, HERT BBU,WD22UBBPex2,Baseband Processing and Interface Unit,1*1

WD85MERCa20	VER.A	Manufactured Board, HERT BBU,WD85MERCa20,Multi Extended Radio Frequency Card-6T6R,DD800,1*1
WD85MERCa05	VER.A	Manufactured Board, HERT BBU,WD85MERCa05,Multi Extended Radio Frequency Card-6T6R,850M,1*1
WD22UBBPf1	VER.A	Manufactured Board,HERT BBU,WD22UBBPf1,Baseband Processing and Interface Unit,1*1
WD26UMPTb4A	VER.D	Manufactured Board,HERT BBU,WD26UMPTb4A,Universal Main Processing & Transmission unit with 2FE/GE,1*1
WD26UMPTb4C	VER.D	Manufactured Board,HERT BBU,WD26UMPTb4C,Universal Main Processing & Transmission unit with 2FE/GE interface and GNSS Card,1*1
WD26UMPTb4B	VER.D	Manufactured Board,HERT BBU,WD26UMPTb4B,Universal Main Processing & Transmission unit with 2FE/GE interface and BDS Multi Mode Card,1*1
WD23UMPTb4	VER.D	HERT BBU, WD23UMPTb4, Universal Main Processing & Transmission unit with 2FE/GE interface, 1*1
WD24UMPTb4	VER.D	Manufactured Board,HERT BBU,WD24UMPTb4,Universal Main Processing & Transmission unit with 2FE/GE interface and GNSS Card,1*1
WD22UMPTe4	VER.C	Manufactured Board,HERT BBU,WD22UMPTe4,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and GNSS Card,1*1
WD22UBBPe1	VER.C	Manufactured Board,HERT BBU,WD22UBBPe1,Baseband Processing and Interface Unit,1*1
WD22UBBPe3	VER.C	Manufactured Board,BBU5900,WD22UBBPe3,Baseband Processing and Interface Unit,1*1
WD22UBBPe1	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe1,Baseband Processing and Interface Unit
WD22UBBPe2	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe2,Baseband Processing and Interface Unit
WD22UBBPe3	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe3,Baseband Processing and Interface Unit
WD22UBBPe4	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe4,Baseband Processing and Interface Unit
WD22UBBPe8	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe8,Baseband Processing and Interface Unit
WD22UBBPen	VER.C	Finished Board Unit,HERT BBU,WD22UBBPen,Baseband Processing and Interface Unit
QWL1WBBPf5	VER.A	Manufactured Board,BBU3900,QWL1WBBPf5,Baseband Processing Unit (CE:UL384/DL512),1*1
QWL1WBBPf5	VER.B	Manufactured Board,BBU3900,QWL1WBBPf5,Baseband Processing Unit (CE:UL384/DL512),1*1
QWL1WBBPf6	VER.A	Manufactured Board,BBU3900,QWL1WBBPf6,Baseband Processing Unit (CE:UL512/DL768),1*1
QWL1WBBPf6	VER.B	Manufactured Board,BBU3900,QWL1WBBPf6,Baseband Processing Unit (CE:UL512/DL768),1*1
WD22UBBPf3	VER.A	Manufactured Board,HERT BBU,WD22UBBPf3,Baseband Processing and Interface Unit,1*1
WD23UBBPex2	VER.A	Finished Board Unit,HERT BBU,WD23UBBPex2,Baseband Processing and Interface Unit ex2
WD26UBBPe1	VER.C	Manufactured Board,WD26UBBPe1

WD26UBBPe3	VER.C	Manufactured Board,HERT BBU,WD26UBBPe3,Universal Baseband Processing and Interface Unit e3,1*1
WD24UBBPe1	VER.C	Manufactured Board,WD24UBBPe1
WD24UBBPe3	VER.C	Manufactured Board,HERT BBU,WD24UBBPe3,Baseband Processing and Interface Unit,1*1
WD22UBBPe10	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe10,Universal Baseband Processing and Interface Unit e10
WD22UBBPe11	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe11,Universal Baseband Processing and Interface Unit e11
WD22UBBPe16	VER.C	Finished Board Unit,HERT BBU,WD22UBBPe16,Baseband Processing and Interface Unit e16
WD26UMPTe1	VER.B	Manufactured Board,HERT BBU,WD22UMPTe,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface,1*1
WD24UMPTe1	VER.B	Manufactured Board,HERT BBU,WD22UMPTe,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface,1*1
WD26UMPTe4	VER.B	Manufactured Board,HERT BBU,WD22UMPTe4,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and GNSS Card,1*1
WD24UMPTe4	VER.B	Manufactured Board,HERT BBU,WD22UMPTe4,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and GNSS Card,1*1
WD26UMPTe5	VER.B	Manufactured Board,HERT BBU,WD22UMPTe5,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UMPTe5	VER.B	Manufactured Board,HERT BBU,WD22UMPTe5,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UBFD	VER.A	Manufactured Board,BBU,WD24UBFD,Fan Monitor Board,4*1
WD24UPEG	VER.B	Manufactured Board,HERT BBU,WD24UPEG,Universal Power and Environment interface unit type G(-48V)
WD2E1FANE	VER.A	Function Module,HERT BBU,WD2E1FANE,2U FAN Module,FanCfgP32S2328
WD2MUPEUD2	03025TCC Ver.B 03021KBJ Ver.C	Function Module,HERT BBU,WD2MUPEUD2,Power and Environment interface Unit(-48V)
WD22UMPTg1	VER.C	Manufactured Board,HERT BBU,WD22UMPTg1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface,1*1
WD22UMPTg2	VER.C	Manufactured Board,HERT BBU,WD22UMPTg2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card,1*1
WD22UMPTg3	VER.C	Manufactured Board,HERT BBU,WD22UMPTg3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD22UBBPg2	VER.B	Manufactured Board,HERT BBU,WD22UBBPg2,Baseband Processing and Interface Unit,1*1

WD22UBBPg3	VER.B	Manufactured Board,HERT BBU,WD22UBBPg3,Universal Baseband Processing Unit g3
WD22UBBPg4	VER.B	Manufactured Board,HERT BBU,WD22UBBPg4,Universal Baseband Processing Unit g4
WD22UBBPg2a	VER.B	Manufactured Board,HERT BBU,WD22UBBPg2a,Baseband Processing and Interface Unit,1*1
WD22UBBPg3a	VER.B	Manufactured Board,HERT BBU,WD22UBBPg3a,Universal Baseband Processing Unit g3a
WD24UMPTg5	VER.B	Manufactured Board,HERT BBU,WD24UMPTg5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UMPTg1	VER.B	Manufactured Board,HERT BBU,WD24UMPTg1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface
WD22UMPTg1	VER.C	Finished Board Unit,HERT BBU,WD22UMPTg1,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg1)
WD24UMPTg2	VER.B	Manufactured Board,HERT BBU,WD24UMPTg2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card
WD22UMPTg2	VER.C	Finished Board Unit,HERT BBU,WD22UMPTg2,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2)
WD22UMPTg2BT	VER.C	UMPTg2BT,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2)
WD22UMPTg2BT	VER.C	UMPTg2BT,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2),With LMA
WD24UMPTg3	VER.B	Manufactured Board,HERT BBU,WD24UMPTg3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card
WD22UMPTg3	VER.C	Finished Board Unit,HERT BBU,WD22UMPTg3,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg3)
WD24UMPTgs	VER.B	Manufactured Board,HERT BBU,WD24UMPTgs,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card,1*1
WD26UBBPg2ac	VER.B	Manufactured Board,HERT BBU,WD26UBBPg2ac,Baseband Processing and Interface Unit,1*1
WD22UBBPg2	VER.B	Finished Board Unit,HERT BBU,WD22UBBPg2,Universal Baseband Processing Unit g2
WD22UBBPg2a	VER.B	Finished Board Unit,HERT BBU,WD22UBBPg2a,Universal Baseband Processing Unit g2a
WD22UBBPg3	VER.B	Finished Board Unit,HERT BBU,WD22UBBPg3,Universal Baseband Processing Unit g3
WD22UBBPg3a	VER.B	Finished Board Unit,HERT BBU,WD22UBBPg3a,Universal Baseband Processing Unit g3a
WD22UBBPg3BT	VER.B	Finished Board Unit,HERT BBU,WD22UBBPg3BT,Universal Baseband Processing Unit g3
WD22UBBPg4	VER.B	Finished Board Unit,HERT BBU,WD22UBBPg4,Universal Baseband Processing Unit g4
WD27UBBPg3c	VER.A	UBBPg3,WD27UBBPg3c,Universal Baseband Processing Unit g3c,1*1

WD27UBBPg2ac	VER.A	UBBPg2a,WD27UBBPg2ac,Baseband Processing and Interface Unit,1*1
WD28UBBPe	VER.A	Manufactured Board,WD28UBBPe
WD28UBBPe1	VER.A	Manufactured Board,WD28UBBPe1
WD22LBBPD5	VER.A	Manufactured Board,HERT BBU,WD22LBBPD5,LTE Baseband Processing and Interface Unit D5
QWL1WBBPf5	VER.A	Manufactured Board,BBU3900,QWL1WBBPf5,Baseband Processing Unit (CE:UL384/DL512),1*1
WD22UBBPe1	VER.A	Finished Board Unit,HERT BBU,WD22UBBPe1,Baseband Processing and Interface Unit
WD22UBBPe2	VER.A	Finished Board Unit,HERT BBU,WD22UBBPe2,Baseband Processing and Interface Unit
WD22UBBPe3	VER.A	Finished Board Unit,HERT BBU,WD22UBBPe3,Baseband Processing and Interface Unit
WD22UBBPe4	VER.A	Finished Board Unit,HERT BBU,WD22UBBPe4,Baseband Processing and Interface Unit
WD22UMPTe1	VER.B	Finished Board Unit,HERT BBU,WD22UMPTe1,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical FE/GE/XGE,UMPTe1)
WD22UMPTe2	VER.B	Finished Board Unit,HERT BBU,WD22UMPTe2,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical FE/GE/XGE,UMPTe2)
WD22UMPTes	VER.B	Finished Board Unit,HERT BBU,WD22UMPTes,Universal Main Processing & Transmission unit(2 Electrical FE/GE&2 Optical FE/GE/XGE,UMPTes),With LMA
WD24UBBPg3	VER.B	UBBPg3,WD24UBBPg3,Universal Baseband Processing Unit g3,1*1
WD24UBBPg2	VER.B	UBBPg2,WD24UBBPg2,Universal Baseband Processing Unit g2,1*1
WD24UBBPg3a	VER.B	UBBPg3,WD24UBBPg3a,Universal Baseband Processing Unit g3a,1*1
WD24UBBPg2a	VER.B	UBBPg2a,WD24UBBPg2a,Baseband Processing and Interface Unit g2a,1*1
WD28UBBPg3c	VER.B	UBBPg3,WD28UBBPg3c,Universal Baseband Processing Unit g3c,1*1
WD28UBBPg2ac	VER.B	UBBPg2a,WD28UBBPg2ac,Baseband Processing and Interface Unit,1*1
WD26UBBPg3TF	VER.B	UBBPg3,WD26UBBPg3TF,Universal Baseband Processing Unit g3TF,1*1
WD22UBBPg3TF	VER.B	UBBPg3,WD22UBBPg3TF,Universal Baseband Processing Unit g3
WD26UBBPg2aTF	VER.B	UBBPg2a,WD26UBBPg2aTF,Universal Baseband Processing Unit g2aTF,1*1
WD22UBBPg2aTF	VER.B	UBBPg2a,WD22UBBPg2aTF,Universal Baseband Processing Unit g2a
WD2DUBPG2AUK	VER.B	HERT BBU,WD2AUBBPg2a,Universal Baseband Processing Unit g2a
WD2DUBBPG2UK	VER.B	HERT BBU,WD2AUBBPg2,Universal Baseband Processing Unit g2

WD26UMPTg2tf	VER.A	UMPTg2tf,WD26UMPTg2tf,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card,1*1
WD26UMPTg2tf	VER.A	UMPTg2,WD26UMPTg2tf,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2)
WD24UBBPe6c	VER.B	UBBPe6c,HERT BBU,WD24UBBPe6c,Universal Baseband Processing and Interface Unit e6c,1*1
WD26UBBPe6c	VER.A	UBBPe6c,HERT BBU,WD26UBBPe6c,Universal Baseband Processing and Interface Unit e6c,1*1
WD24UBBPea	VER.B	Manufactured Board,HERT BBU,WD24UBBPea,Baseband Processing and Interface Unit,1*1
WD26UBBPea	VER.A	UBBPea,HERT BBU,WD26UBBPea,Baseband Processing and Interface Unit ea,1*1
WD23UBBPeb	VER.B	Manufactured Board,HERT BBU,WD23UBBPeb,Universal Baseband Processing and Interface Unit eb,1*1
WD23UBBPex2	VER.A	Finished Board Unit,HERT BBU,WD23UBBPex2,Baseband Processing and Interface Unit ex2
QWL1WBBPf6	VER.B	Manufactured Board,BBU3900,QWL1WBBPf6,Baseband Processing Unit (CE:UL512/DL768),1*1
WD22UBBPe5	VER.A	Finished Board Unit,HERT BBU,WD22UBBPe5,Baseband Processing and Interface Unit
WD22UBBPe6	VER.A	Finished Board Unit,HERT BBU,WD22UBBPe6,Baseband Processing and Interface Unit
WD22UBBPea	VER.A	Finished Board Unit,HERT BBU,WD22UBBPea,Baseband Processing and Interface Unit
WD22UBBPeas	VER.A	Finished Board Unit,HERT BBU,WD22UBBPeas,Baseband Processing and Interface Unit
WD25UMPTe5	VER.C	Manufactured Board,HERT BBU,WD25UMPTe5,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD23UMPTe	VER.C	Manufactured Board,HERT BBU,WD23UMPTe,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface,1*1
WD23UMPTe4	VER.C	Manufactured Board,HERT BBU,WD23UMPTe4,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and GNSS Card,1*1
WD23UMPTe5	VER.C	Manufactured Board,HERT BBU,WD23UMPTe5,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD21USCUb16	VER.A	USCUb16,HERT BBU,WD21USCUb16,Universal Satellite card and Clock Unit type
WD23USCUb11	VER.A	USCUb11,HERT BBU,WD23USCUb11,Universal Satellite card and Clock Unit type
WD21USCUb16	VER.A	USCUb16,HERT BBU,WD21USCUb16,Universal Satellite card and Clock Unit type
WD23UBBPg1	VER.B	UBBPg1,BBU3900,WD23UBBPg1,Universal Baseband Processing Unit g1,1*1
WD23UBBPg1	VER.B	UBBPg1,HERT BBU,WD23UBBPg1,Universal Baseband Processing Unit g1
WD22UBBPe18	VER.B	Manufactured Board,BBU3900,WD22UBBPe18,Universal Baseband Processing Unit e18,1*1

WD22UBBPe18	VER.B	Finished Board Unit,HERT BBU,WD22UBBPe18,Universal Baseband Processing Unit e18
WD26UBBPg2a	VER.B	Manufactured Board,HERT BBU,WD26UBBPg2a,Baseband Processing and Interface Unit g2aA2
WD26UBBPg2	VER.B	Manufactured Board,HERT BBU,WD26UBBPg2,Baseband Processing and Interface Unit g2A2
WD24UBBPg4c2	VER.A	UBBPg4,WD24UBBPg4c2,Universal Baseband Processing Unit g4c2,1*1
WD24UBBPg3TF	VER.B	UBBPg3,WD24UBBPg3TF,Universal Baseband Processing Unit g3,1*1
WD2DUBBPG2C0	VER.B	UBBPg2c,WD28UBBPg2c,Universal Baseband Processing Unit g2c
WD24UMPTg5	VER.C	Manufactured Board,HERT BBU,WD24UMPTg5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UMPTg1	VER.C	Manufactured Board,HERT BBU,WD24UMPTg1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface
WD24UMPTg2	VER.C	Manufactured Board,HERT BBU,WD24UMPTg2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card
WD24UMPTg3	VER.C	UMPTg3,WD24UMPTg3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card
WD24UMPTgs	VER.C	Manufactured Board,HERT BBU,WD24UMPTgs,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card,1*1
WD23UMPTe5c	VER.A	UMPTe5c,WD23UMPTe5c,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD23USCUb11	VER.A	HERT BBU,WD23USCUb11,Universal Satellite card and Clock Unit,1*1
WD24UMPTga1	VER.A	HERT BBU,WD24UMPTga1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface,1*1
WD24UMPTga2	VER.A	HERT BBU,WD24UMPTga2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface and GNSS Card,1*1
WD24UMPTga5	VER.A	HERT BBU,WD24UMPTga5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UMPTga3	VER.A	HERT BBU,WD24UMPTga3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD2DUMPTGA10	VER.A	HERT BBU,WD24UMPTga1,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTga1)
WD2DUMPTGA11	VER.A	HERT BBU,WD24UMPTga1,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTga1),with LMA
WD2DUMPTGA20	VER.A	HERT BBU,WD24UMPTga2,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTga2)
WD2DUMPTGA21	VER.A	HERT BBU,WD24UMPTga2,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical

		GE/XGE,UMPTga2),With LMA
WD2DUMPTGA50	VER.A	HERT BBU,WD24UMPTga5,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTga5)
WD2DUMPTGA30	VER.A	HERT BBU,WD24UMPTga3,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTga3)
WD2DUMPTGA31	VER.A	HERT BBU,WD24UMPTga3,Universal Main Processing & Transmission unit(2 Electrical FE/GE&2 Optical GE/XGE,UMPTga3),With LMA
WD21USCUb18	VER.A	HERT BBU,WD21USCUb18,Universal Satellite card and Clock Unit,1*1
WD26UMPTg5	VER.C	Manufactured Board, HERT BBU,WD26UMPTg5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD26UMPTg3	VER.C	UMPTg3,WD26UMPTg3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UMPTe1	VER.A	UMPTe1,WD24UMPTe1,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface
WD24UMPTe3	VER.A	UMPTe3,WD24UMPTe3,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD24UMPTe4	VER.A	UMPTe4,HERT BBU,WD24UMPTe4,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface GPS Card
WD2DUBBPG3A0	VER.B	UBBPg3,WD24UBBPg3aTF,Universal Baseband Processing Unit g3aTF
WD2DUBBPG3L0	VER.B	UBBPg3L,WD24UBBPg3L,Universal Baseband Processing Unit g3L
WD24UBBPg1	VER.B	Manufactured Board,BBU3900,WD24UBBPg1,Universal Baseband Processing Unit g1,1*1
WD2DUBBPG1C0	VER.B	Finished Board Unit, HERT BBU,WD24UBBPg1,Universal Baseband Processing Unit g1
WD29UBBPg1	VER.A	UBBPg1,BBU3900,WD29UBBPg1,Universal Baseband Processing Unit g1,1*1
WD24UMPTg2tf	VER.C	UMPTg2tf,WD24UMPTg2tf,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GNSS Card,1*1
WD2DUMPTG2TH	VER.C	UMPTg2,WD26UMPTg2tf,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE/YGE,UMPTg2)
WD23UMPTe1c	VER.A	UMPTe1c,WD23UMPTe1c,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface,1*1
WD23UMPTe2c	VER.A	UMPTe2c,WD23UMPTe2c,Universal Main Processing & Transmission unit with 2FE/GE 2FE/GE/XGE and 1CI interface GPS Card,1*1
WD24UBBPg4	VER.A	Manufactured Board,UBBPg4,WD24UBBPg4,Universal Baseband Processing Unit g4,1*1
WD25UBBPg1	VER.B	UBBPg1,BBU3900,WD25UBBPg1,Universal Baseband Processing Unit g1,1*1
WD2DUBBPG1BT	VER.B	UBBPg1,HERT BBU,WD25UBBPg1,Universal Baseband Processing Unit g1

WD2CUBBPg2	VER.C	UBBPg2,WD2CUBBPg2,Universal Baseband Processing Unit g2
WD29UBBPg1	VER.B	UBBPg1,BBU3900,WD29UBBPg1,Universal Baseband Processing Unit g1,1*1
WD27UBBPg1	VER.B	UBBPg1,BBU3900,WD27UBBPg1,Universal Baseband Processing Unit g1,1*1
WD28UBBPg1	VER.B	UBBPg1,BBU3900,WD28UBBPg1,Universal Baseband Processing Unit g1,1*1
WD29UBBPe18	VER.B	UBBPe18,BBU3900,WD29UBBPe18,Universal Baseband Processing Unit e18,1*1
WD2DUBBPG3B0	VER.B	UBBPg3b,WD24UBBPg3b,Universal Baseband Processing Unit g3b
QWL1WBBPf5	VER.C	Manufactured Board,BBU3900,QWL1WBBPf5,Baseband Processing Unit (CE:UL384/DL512),1*1
WD23UMPTe2	VER.B	Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical FE/GE/XGE,UMPTe2)
WD23UMPTe3	VER.C	Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical FE/GE/XGE,UMPTe3)
WD29UMPTg1	VER.B	HERT BBU,WD29UMPTg1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface,1*1
WD29UMPTg2	VER.B	HERT BBU,WD29UMPTg2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and GPS Card
WD29UMPTg3	VER.B	HERT BBU,WD29UMPTg3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card
WD29UMPTg5	VER.B	HERT BBU,WD29UMPTg5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD2BUBBPg3c	VER.A	UBBPg3,WD2BUBBPg3c,Universal Baseband Processing Unit g3c,1*1
WD2BUBBPg3	VER.A	UBBPg3,WD2BUBBPg3,Universal Baseband Processing Unit g3,1*1
WD2BUBBPg2ac	VER.A	UBBPg2a,WD2BUBBPg2ac,Universal Baseband Processing Unit g2ac
WD2BUBBPg2a	VER.A	UBBPg2a,WD2BUBBPg2a,Universal Baseband Processing Unit g2a
WD2BUBBPg2c	VER.A	UBBPg2,WD2BUBBPg2c,Universal Baseband Processing Unit g2c
WD2BUBBPg2	VER.A	UBBPg2,WD2BUBBPg2,Universal Baseband Processing Unit g2,1*1
WD2DUMPTE180	VER.A	UMPTe18,WD22UMPTe18,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTe18)
WD2DUMPTE190	VER.A	UMPTe19,WD22UMPTe19,Universal Main Processing & Transmission Unit (2 Electrical FE/GE&2 Optical GE/XGE,UMPTe19)
WD22UBBPg1a	VER.B	UBBPg1a,WD22UBBPg1a,Universal Baseband Processing Unit g1a,1*1
WD2DUBBPG1A0	VER.B	UBBPg1a,WD22UBBPg1a,Universal Baseband Processing Unit g1a
WD25UMPTga1	VER.B	HERT BBU,WD25UMPTga1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface,1*1
WD25UMPTga2	VER.B	HERT BBU,WD25UMPTga2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface and GNSS Card,1*1

WD25UMPTga3	VER.B	HERT BBU,WD25UMPTga3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD25UMPTga5	VER.B	HERT BBU,WD25UMPTga5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE and 1CI interface and BDS Multi Mode Card,1*1
WD2FUBBPg3	Ver.A	UBBPg3,WD2FUBBPg3,Universal Baseband Processing Unit g3,1*1
WD2GUBBPg3	Ver.A	UBBPg3,WD2GUBBPg3,Universal Baseband Processing Unit g3,1*1
WD2FUBBPg2a	Ver.A	UBBPg2a,WD2FUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2GUBBPg2a	Ver.A	UBBPg2a,WD2GUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2HUBBPg2a	Ver.A	UBBPg2a,WD2HUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2JUBBPg2a	Ver.A	UBBPg2a,WD2JUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2FUBBPg2	Ver.A	UBBPg2,WD2FUBBPg2,Universal Baseband Processing Unit g2,1*1
WD2GUBBPg2	Ver.A	UBBPg2,WD2GUBBPg2,Universal Baseband Processing Unit g2,1*1
WD2KUBBPg1a	Ver.A	UBBPg1a,WD2KUBBPg1a,Universal Baseband Processing Unit g1a,1*1
WD2LUBBPg1a	Ver.A	UBBPg1a,WD2LUBBPg1a,Universal Baseband Processing Unit g1a,1*1
WD2JUBBPg2	VER.B	UBBPg2,WD2JUBBPg2,Baseband Processing and Interface Unit g2,1*1
WD2HUBBPg2	VER.B	UBBPg2,WD2HUBBPg2,Baseband Processing and Interface Unit g2,1*1
WD2JUBBPg1a	VER.B	UBBPg1a,WD2JUBBPg1a,Baseband Processing and Interface Unit g1a,1*1
WD2HUBBPg1a	VER.B	UBBPg1a,WD2HUBBPg1a,Baseband Processing and Interface Unit g1a,1*1
WD2AUBBPe3	VER.A	HERT BBU,WD2AUBBPe3,Universal Baseband Processing Unit e3,1*1
WD2BUBBPe3	VER.A	HERT BBU,WD2BUBBPe3,Universal Baseband Processing Unit e3,1*1
WD28UMPTe5	VER.A	UMPTe5,WD28UMPTe5,Universal Main Processing & Transmission Unit e5 (2FE/GE+2FE/GE/XGE+CI GPS+BDS),1*1
WD28UMPTe1	VER.A	UMPTe1,WD28UMPTe1,Universal Main Processing & Transmission Unit e1 (2FE/GE+2FE/GE/XGE+CI),1*1
WD28UMPTe2	VER.A	UMPTe2,WD28UMPTe2,Universal Main Processing & Transmission Unit e2 (2FE/GE+2FE/GE/XGE+CI GPS),1*1
WD28UMPTe3	VER.A	UMPTe3,WD28UMPTe3,Universal Main Processing & Transmission Unit e3 (2FE/GE+2FE/GE/XGE+CI GPS+BDS),1*1
WD2MUBBPg1a	VER.B	UBBPg1a,WD2MUBBPg1a,Universal Baseband Processing Unit g1a,1*1
WD2NUBBPg1a	VER.B	UBBPg1a,WD2NUBBPg1a,Baseband Processing and Interface Unit g1a,1*1
WD2PUBBPg1a	VER.B	UBBPg1a,WD2PUBBPg1a,Baseband Processing and Interface Unit g1a,1*1
WD2MUBBPg2	VER.B	UBBPg2,WD2MUBBPg2,Universal Baseband Processing Unit g2,1*1

WD2NUBBPg2	VER.B	UBBPg2,WD2NUBBPg2,Universal Baseband Processing Unit g2,1*1
WD2PUBBPg2	VER.B	UBBPg2,WD2PUBBPg2,Universal Baseband Processing Unit g2,1*1
WD2MUBBPg2a	VER.B	UBBPg2a,WD2MUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2NUBBPg2a	VER.B	UBBPg2a,WD2NUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2PUBBPg2a	VER.B	UBBPg2a,WD2PUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD29UMPTb4	VER.B	UMPTb4,WD29UMPTb4,Universal Main Processing & Transmission unit with (2FE/GE GPS),1*1
WD28UMPTb4	VER.B	UMPTb4,WD28UMPTb4,Universal Main Processing & Transmission unit with (2FE/GE GPS+BDS),1*1
WD2YUBBPg2a	VER.A	UBBPg2a,WD2YUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2LUBBPg2a	VER.A	UBBPg2a,WD2LUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2KUBBPg2a	VER.A	UBBPg2a,WD2KUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2OUBBPg2a	VER.A	UBBPg2a,WD2OUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2IUBBPg2a	VER.A	UBBPg2a,WD2IUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2CUBBPg2a	VER.A	UBBPg2a,WD2CUBBPg2a,Universal Baseband Processing Unit g2a,1*1
WD2DUMPTg1	VER.B	UMPTg1,WD2DUMPTg1,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface,1*1
WD2DUMPTg2	VER.B	UMPTg2,WD2DUMPTg2,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD2DUMPTg3	VER.B	UMPTg3,WD2DUMPTg3,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD2DUMPTg5	VER.B	UMPTg5,WD2DUMPTg5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1
WD2EUMPTg5	VER.B	UMPTg5,WD2EUMPTg5,Universal Main Processing & Transmission unit with 2FE/GE 2GE/XGE/YGE and 1CI interface and BDS Multi Mode Card,1*1

Table 4 Subassembly list

Subassembly			
Subassembly Name	Model	Manufacturer	Description
Subrack	BBU	HUAWEI	Shielded

4 System Configuration during EMC Test

The Equipment under Test (EUT) functions correctly during all tests. The EUT was installed within the test site and was configured to simulate a typical configuration.

4.1 Ports and Cables

Table 5 Port and cables

Port	Quantity	Length (m)	Connector	Type of Cable
DC Power Port	2	2	/	Unshielded
Ethernet port	2	10	RJ45	Shielded (only for maintenance)
FE port	2	10	RJ45	Shielded
GE port	10	2	RJ45	Shielded
E1 port	1	3	DB26	Shielded
FE Port	2	3	SFP	Multi-mode fibre
CPRI	36	3	SFP	Multi-mode fibre
CPRI	12	3	QSFP	Multi-mode fibre
GNSS Port	1	10	SMA	Coaxial (Shielded)
CPRI	36	3	SFP	Single-mode fiber
XCI	12	3	QSFP	Single-mode fiber
HEI	6	10	QSFP	Shielded (Internal Port)
RGPS	1	3	RJ45	Shielded
TOD	2	3	RJ45	Shielded
BITS	1	3	SMA	Shielded
Earth	1	3	/	Unshielded

4.2 Auxiliary Equipment

Table 6 Auxiliary equipment

Name	Model	Manufacturer	S/N	Calibration Date	Cal Interval (month)
Personal Computer	M4800	LENOVO	N/A	N/A	N/A
Signal Generator	E4438C	Agilent	3607102318	2021-05-04	12

4.3 Test Configurations

The EUT was connected to auxiliary equipment in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).
There were thirty seven test configurations. TC1 to TC37 were shown in the following table and figures:

Table 7 Test configuration

Configuration	Configuration Description
TC1	-48 V DC Supply /full configuration(two UMPT) UBBPd /UMPT DC-I with GPS module
TC2	-48 V DC Supply /full configuration(one UMPT) UBBPd /UMPT DC-I with GPS module
TC3	-48 V DC Supply /full configuration(one UMPT) LBBPd /UMPT DC-I with GPS module
TC4	-48V DC Supply /typical configuration UBBPd /UMPT/UBRIb/UTRP/USCUb DC-I with GPS module
TC5	-48 V DC Supply /full configuration 5 UBBPd /1 GTMUc/1 UMPT DC-I with GPS module
TC6	-48 V DC Supply / G/U/L/GU/GL/UL/GUL typical configuration (UCCU /UMPT) DC-I with GPS module
TC7	-48 V DC Supply / G/U/L/GU/GL/UL/GUL typical configuration (UBBPe/UMPTe) DC-I with GPS module
TC8	-48V DC Supply/G/U/L/GU/GL/UL/GUL typical configuration (UBBPei / UMPTb) DC-I with GPS module
TC9	-48V DC Supply/G/U/L/GU/GL/UL/GUL typical configuration (UBBPep / UMPTb) DC-I with GPS module
TC10	-48V DC Supply/G/U/L/GU/GL/UL/GUL typical configuration (UBBPem / UMPTe) DC-I with GPS module
TC11	-48V DC Supply /MERC 900 MHz, support GSM only, UMTS only, LTE only, GSM/UMTS, GSM/LTE, UMTS/LTE, GSM/UMTS/LTE
TC12	-48V DC Supply /MERC 1800M, support GSM only, UMTS only, LTE only, GSM/UMTS, GSM/LTE, UMTS/LTE, GSM/UMTS/LTE
TC13	-48V DC Supply /MERC 2100M, support GSM only, UMTS only, LTE only, GSM/UMTS, GSM/LTE, UMTS/LTE, GSM/UMTS/LTE
TC14	-48V DC Supply /MERC 2600M, support GSM only, UMTS only, LTE only, GSM/UMTS, GSM/LTE, UMTS/LTE, GSM/UMTS/LTE
TC15	-48V DC Supply /G/U/L/GU/UL/GUL typical configuration, (UBBPex/UMPTe)DC-I with GPS module
TC16	-48V DC Supply /MERC 850M, support GSM only, CDMA only, UMTS only, LTE only, GSM/UMTS, GSM/LTE, UMTS/LTE, GSM/UMTS/LTE
TC17	-48V DC Supply /MERC DD800M, support LTE only
TC18	UPEUd*2, UMPTe*1+UMPTb*1+UBBPf1*4+UBBPea*2
TC19	UPEUd*2, UMPTe*1+UBBPf3*6
TC20	UPEUd*2, UMPTe5*2+UBBPe3*6, FANe
TC21	UPEUd*2, UMPTe+UMPTg+UBBPg*6, FANe
TC22	UPEUd*2, UMPTe+UMPTg+UBBPe*2+UBBPg3c*3+UBBPg2ac, FANf
TC23	UPEUd*2, UMPTe+UBBPg*4+UBBPe*2+USCU, FANe
TC24	UPEUd*2, UMPTe+UMPTg+UBBPg*6, FANe
TC25	UPEUd*2, UMPTe+UMPTg+UBBPg*6, FANe (UBBPg is WD24UBBPg4c2, UMPTg is WD24UMPTg5,UMPTe is WD23UMPTe5)
TC26	UPEUd*2, UMPTe*2+UBBPe*6, FANe

	(UBBPe is WD24UBBPe6c,UMPTe is WD23UMPTe5 or WD23UMPTe5c)
TC27	UPEUd*2, UMPTe*1+UMPTg*1+UBBPe*6, FANe (UBBPe is WD24UBBPe6c,UMPTe is WD23UMPTe5,UMPTg is WD24UMPTga5)
TC28	UBBPd*2,UMPTe*1+UBBPg*6, FANe (UBBPg is WD29UBBPg1,UMPTe is WD23UMPTe5)
TC29	UBBPd*2, UMPTe*1+UBBPg*3+UBBPg1*2, FANe (UBBPg is WD2CUBBPg2, UBBPg1 is WD27UBBPg1, UMPTe is WD22UMPTe4)
TC30	UBBPd*2, UMPTe*1+UMPTg*1+UBBPg*6, FANe (UBBPg is WD2BUBBPg3c or WD28UBBPg2ac; UMPTg is WD29UMPTg5; UMPTe is WD22UMPTe4)
TC31	UBBPd*2, UMPTe*1+UMPTg*1+UBBPg*6, FANe (UBBPg is WD22UBBPg1a or WD27UBBPg1, UMPTg is WD25UMPTga5, UMPTe is WD22UMPTe4)
TC32	UBBPd*2, UMPTe*1 UBBPg*6, FANe (UBBPg is WD2LUBBPg1a, UMPTe is WD22UMPTe4)
TC33	UBBPd*2, UMPTe*1+UMPTg*1+UBBPg*2+UBBPe*4, FANe (UBBPg is WD2JUBBPg1a; UBBPe is WD2AUBBPe3; UMPTg is WD25UMPTga3; UMPTe is WD22UMPTe5)
TC34	UBBPd*2, UMPTe*2+UBBPe*6, FANe (UBBPe is WD2AUBBPe3; UMPTe is WD22UMPTe5 or WD28UMPTe5)
TC35	UBBPd*2, UMPTe+UBBPg*6, FANe (UBBPg is WD2NUBBPg1a or WD2MUBBPg2 or WD2NUBBPg2a; UMPTe is WD22UMPTe5)
TC36	UPEUd*2, UMPTe+UMPTb+UBBPg*6,FANe (UBBPg is WD2YUBBPg2a; UMPTb is WD29UMPTb4; UMPTe is WD22UMPTe4;
TC37	UPEUd*2, UMPTe+UMPTg+UBBPg*6, FANe (UBBPg is WD2YUBBPg2a; UMPTg is WD2DUMPTg2; UMPTe is WD22UMPTe4)

<table>
<tr><td rowspan="4">FAN</td><td>UBBPd</td><td>UBBPd</td><td rowspan="2">UPEU</td></tr>
<tr><td>UBBPd</td><td>UBBPd</td></tr>
<tr><td>UBBPd</td><td>UMPT</td><td rowspan="2">UPEU</td></tr>
<tr><td>UBBPd</td><td>UMPT</td></tr>
</table>

Figure 2.Test Configuration1 (TC1)

<table>
<tr><td rowspan="4">FAN</td><td>UBBPd</td><td>UBBPd</td><td rowspan="2">UPEU</td></tr>
<tr><td>UBBPd</td><td>UBBPd</td></tr>
<tr><td>UBBPd</td><td></td><td rowspan="2">UPEU</td></tr>
<tr><td>UBBPd</td><td>UMPT</td></tr>
</table>

Figure 3.Test Configuration2 (TC2)

<table>
<tr><td rowspan="4">FAN</td><td>LBBPd</td><td>LBBPd</td><td rowspan="2">UPEU</td></tr>
<tr><td>LBBPd</td><td>LBBPd</td></tr>
<tr><td>LBBPd</td><td></td><td rowspan="2">UPEU</td></tr>
<tr><td>LBBPd</td><td>UMPT</td></tr>
</table>

Figure 4.Test Configuration3 (TC3)

<table>
<tr><td rowspan="4">FAN</td><td>USCUb</td><td>UTRP</td><td rowspan="2">UEIU</td></tr>
<tr><td>UBBPd</td><td>UBBPd</td></tr>
<tr><td>UBRIb</td><td>UMPT</td><td rowspan="2">UPEU</td></tr>
<tr><td>UBBPd</td><td>UMPT</td></tr>
</table>

Figure 5.Test Configuration4 (TC4)

FANd	UBBPd	UBBPd	UPEUd
	UBBPd	GTMUc	
	UBBPd		UPEUd
	UBBPd	UMPT	

Figure 6.Test Configuration5 (TC5)

FANd	UCCU	UCCU	UPEUd
	UCCU	UCCU	
	UCCU	UMPT	UPEUd
	UCCU	UMPT	

Figure 7.Test Configuration6 (TC6)

FANd	UBBPE	UBBPE	UPEUd
	UBBPE	UBBPE	
	UBBPE	UMPTE	UPEUd
	UBBPE	UMPTE	

Figure 8.Test Configuration7 (TC7)

FANd	UBBPei	UBBPei	UPEUd
	UBBPei	UBBPei	
	UBBPei		UPEUd
	UBBPei	UMPTb	

Figure 9.Test Configuration8 (TC8)

FANd	UBBPep	UBBPep	UPEUd
	UBBPep	UBBPep	
	UBBPep		UPEUd
	UBBPep	UMPTb	

Figure 10. Test Configuration9 (TC9)

FANe	UBBPem	UBBPem	UPEUd
	UBBPem	UBBPem	
	UBBPem	UMPTe	UPEUd
	UBBPem	UMPTe	

Figure 11. Test Configuration10 (TC10)

FANe	MERCa08	MERCa07	UPEUd
	MERCa03	MERCa01	
	UBBPd	UMPTe	UPEUd
	UBBPd	UMPTe	

Figure 12. Test Configuration11 (TC11)

FANe	MERCa08	MERCa07	UPEUd
	MERCa03	MERCa01	
	UBBPd	UMPTb	UPEUd
	UBBPd	UMPTb	

Figure 13. Test Configuration12 (TC12)

FANe	MERCa08	MERCa07	UPEUd
	MERCa03	MERCa01	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTe	

Figure 14. Test Configuration13 (TC13)

FANe	MERCa08	MERCa07	UPEUd
	MERCa03	MERCa01	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTe	

Figure 15. Test Configuration14 (TC14)

FANe	UBBPex	UBBPex	UPEUd
	UBBPex	UBBPex	
	UBBPex	UMPTe	UPEUd
	UBBPex	UMPTe	

Figure 16. Test Configuration15 (TC15)

FANe	MERCa05	MERCa05	UPEUd
	MERCa05	MERCa05	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTe	

Figure 17. Test Configuration16 (TC16)

FANe	MERCa20	MERCa20	UPEUd
	MERCa20	MERCa20	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTe	

Figure 18. Test Configuration17 (TC17)

FANe	UBBPf1	UBBPea	UPEUd
	UBBPf1	UBBPea	
	UBBPf1	UMPTb	UPEUd
	UBBPf1	UMPTe	

Figure 19. Test Configuration18 (TC18)

FANe	UBBPf3	UBBPf3	UPEUd
	UBBPf3	UBBPf3	
	UBBPf3	UMPTe	UPEUd
	UBBPf3	UMPTe	

Figure 20. Test Configuration19 (TC19)

FANe	UBBPe3	UBBPe3	UPEUd
	UBBPe3	UBBPe3	
	UBBPe3	UMPTe5	UPEUd
	UBBPe3	UMPTe5	

Figure 21. Test Configuration20 (TC20)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTg	UPEUd
	UBBPg	UMPTe	

Figure 22. Test Configuration21 (TC21)

FANe	UBBPe	UBBPe	UPEUd
	UBBPg3c	UBBPg3c	
	UBBPg3c	UMPTg	UPEUd
	UBBPg2ac	UMPTe	

Figure 23. Test Configuration22 (TC22)

FANe	UBBPg	UBBPe	UPEUd
	UBBPg	UBBPe	
	UBBPg	USCU	UPEUd
	UBBPg	UMPTe	

Figure 24. Test Configuration23 (TC23)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTg	UPEUd
	UBBPg	UMPTe	

Figure 25. Test Configuration24 (TC24)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTg	UPEUd
	UBBPg	UMPTe	

Figure 26. Test Configuration25 (TC25)

FANe	UBBPe	UBBPe	UPEUd
	UBBPe	UBBPe	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTe	

Figure 27. Test Configuration26 (TC26)

FANe	UBBPe	UBBPe	UPEUd
	UBBPe	UBBPe	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTg	

Figure 28. Test Configuration27 (TC27)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg		UPEUd
	UBBPg	UMPTe	

Figure 29. Test Configuration28 (TC28)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg		
	UBBPg1		UPEUd
	UBBPg1	UMPTe	

Figure 30. Test Configuration29 (TC29)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTg	UPEUd
	UBBPg	UMPTe	

Figure 31. Test Configuration30 (TC30)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTg	UPEUd
	UBBPg	UMPTe	

Figure 32. Test Configuration31 (TC31)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg		UPEUd
	UBBPg	UMPTe	

Figure 33. Test Configuration32 (TC32)

FANe	UBBPg	UBBPe	UPEUd
	UBBPg	UBBPe	
	UBBPe	UMPTg	UPEUd
	UBBPe	UMPTe	

Figure 34. Test Configuration33 (TC33)

FANe	UBBPe	UBBPe	UPEUd
	UBBPe	UBBPe	
	UBBPe	UMPTe	UPEUd
	UBBPe	UMPTe	

Figure 35. Test Configuration34 (TC34)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg		UPEUd
	UBBPg	UMPTe	

Figure 36. Test Configuration35 (TC35)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTb	UPEUd
	UBBPg	UMPTe	

Figure 37. Test Configuration36 (TC36)

FANe	UBBPg	UBBPg	UPEUd
	UBBPg	UBBPg	
	UBBPg	UMPTg	UPEUd
	UBBPg	UMPTe	

Figure 38. Test Configuration37 (TC37)

Note:
UBBPd is WD22UBBPd1 or WD22UBBPd2 or WD22UBBPd3 or WD22UBBPd4 or WD22UBBPd5 or WD22UBBPd6 or WD22UBBPd8 or WD22UBBPd9 or WD22UBBPd9s or WD23UBBPd1 or WD23UBBPd2 or WD23UBBPd3 or WD23UBBPd4 or WD23UBBPd8 or WD22UBBPda or WD22UBBPdb or WD23UBBPd9 or WD23UBBPd or WD22UBBPdc or WD22UBBPdd or WD22LMBP or WD26UBBPd5 or WD26UBBPd6;

UBBPe is WD22UBBPe1 or WD22UBBPe2 or WD22UBBPe3 or WD22UBBPe4 or WD22UBBPe5 or WD22UBBPe6 or WD22UBBPe8 or WD22UBBPe9 or WD22UBBPe9s or WD22UBBPea or WD22UBBPeas or WD22UBBPen or WD22LBBPD5 or WD21LCOP or WD23UBBPex2 or WD26UBBPe1 or WD26UBBPe3 or WD24UBBPe1 or WD24UBBPe3 or WD22UBBPe10 or WD22UBBPe11 or WD22UBBPe16 or WD28UBBPe or WD28UBBPe1 or QWL1WBBPf5 or WD24UBBPe6c or WD26UBBPe6c or WD24UBBPea or WD26UBBPea or WD23UBBPeb or WD23UBBPex2 or QWL1WBBPf6 or WD22UBBPe5 or WD22UBBPe6 or WD22UBBPea or WD22UBBPeas or WD22UBBPe18 or WD29UBBPe18 or WD2AUBBPe3 or WD2BUBBPe3;

UBBPg is WD22UBBPg2 or WD22UBBPg3 or WD22UBBPg4 or WD22UBBPg2a or WD22UBBPg3a or WD22UBBPg3BT or WD26UBBPg2ac or WD27UBBPg3c or WD27UBBPg2ac or WD24UBBPg3 or WD24UBBPg2 or WD24UBBPg3a or WD24UBBPg2a or WD28UBBPg3c or WD28UBBPg2ac or WD26UBBPg3TF or WD22UBBPg3TF or WD26UBBPg2aTF or WD22UBBPg2aTF or WD2DUBPG2AUK or WD2DUBBPG2UK or WD23UBBPg1 or WD26UBBPg2a or WD26UBBPg2 or WD24UBBPg4c2 or WD24UBBPg3TF or WD2DUBBPG2C0 or WD2DUBBPG3A0 or WD2DUBBPG3L0 or WD24UBBPg1 or WD2DUBBPG1C0 or WD29UBBPg1 or WD24UBBPg4 or WD25UBBPg1 or WD2DUBBPG1BT or WD2CUBBPg2 or WD27UBBPg1 or WD28UBBPg1 or WD2DUBBPG3B0 or WD2BUBBPg3c or WD2BUBBPg3 or WD2BUBBPg2ac or WD2BUBBPg2a or WD2BUBBPg2c or WD2BUBBPg2 or WD22UBBPg1a or WD2DUBBPG1A0 or WD2FUBBPg3 or WD2GUBBPg3 or WD2FUBBPg2a or WD2GUBBPg2a or WD2HUBBPg2a or WD2JUBBPg2a or WD2FUBBPg2 or WD2GUBBPg2 or WD2KUBBPg1a or WD2LUBBPg1a or WD2JUBBPg2 or WD2HUBBPg2 or WD2JUBBPg1a or WD2HUBBPg1a or WD2MUBBPg1a or WD2NUBBPg1a or WD2PUBBPg1a or WD2MUBBPg2 or WD2NUBBPg2 or WD2PUBBPg2 or WD2MUBBPg2a or WD2NUBBPg2a or WD2PUBBPg2a or WD2YUBBPg2a or WD2LUBBPg2a or WD2KUBBPg2a or WD2OUBBPg2a or WD2IUBBPg2a or WD2CUBBPg2a;
.

USCU is WD22USCUB11 or WD22USCUB12 or WD22USCUB13 or WD22USCUB14 or WD22USCUB21 or WD22USCUB22 or WD22USCUB23 or WD21USCUb16 or WD23USCUb11 or WD21USCUb18;

UBBPei is WD21UBBPei or WD21UBBPei2;
UBBPep is WD21UBBPep;
UBBPem is WD22UBBPem;
UBBPex is WD22UBBPex;
UBBPea is WD22UBBPea;
UBBPf1 is WD22UBBPf1;
UBBPf3 is WD22UBBPf3;
LBBPd is WD22LBBPD2;
UBRIb is WD22UBRIb;
GTMUc is WD22GTMUC;
UCCU is WD22UCCU;

MERCa01 is WD85MERCa01; MERCa03 is WD85MERCa03; MERCa05 is WD85MERCa05; MERCa07 is WD85MERCa07; MERCa08 is WD85MERCa08; MERCa20 is WD85MERCa20;

UMPTb is WD22UMPTb1 or WD22UMPTb2 or WD22UMPTb5 or WD23UMPTb9 or WD22UMPTs or WD22UMPTs2 or WD23UMPTb4 or WD23UMPT or WD24UMPTb4 or WD23UMPTb3 or WD26UMPTb4A or WD26UMPTb4C or WD26UMPTb4B or WD29UMPTb4 or WD28UMPTb4;

UMPTe is WD22UMPTe or WD22UMPTe1 or WD22UMPTe2 or WD22UMPTe3 or WD22UMPTe4 or WD22UMPTe5 or WD22UMPTes or WD26UMPTe1 or WD24UMPTe1 or WD26UMPTe4 or WD24UMPTe4 or WD26UMPTe5 or WD24UMPTe5 or WD25UMPTe5 or WD23UMPTe or WD23UMPTe4 or WD23UMPTe5 or WD23UMPTe5c or WD24UMPTe3 or WD23UMPTe1c or WD23UMPTe2c or WD23UMPTe2 or WD23UMPTe3 or WD2DUMPTE180 or WD2DUMPTE190 or WD28UMPTe5 or WD28UMPTe1 or WD28UMPTe2 or WD28UMPTe3;

UMPTg is WD22UMPTg1 or WD22UMPTg2 or WD22UMPTg3 or WD22UMPTg2BT or WD24UMPTg5 or WD24UMPTg1 or WD24UMPTg2 or WD24UMPTg3 or WD24UMPTgs or WD26UMPTg2tf or WD24UMPTg5 or WD24UMPTga1 or WD24UMPTga2 or WD24UMPTga5 or WD24UMPTga3 or WD2DUMPTGA10 or WD2DUMPTGA11 or WD2DUMPTGA20 or WD2DUMPTGA21 or WD2DUMPTGA50 or WD2DUMPTGA30 or WD2DUMPTGA31 or WD26UMPTg5 or WD26UMPTg3 or WD24UMPTg2tf or WD2DUMPTG2TH or WD29UMPTg1 or WD29UMPTg2 or WD29UMPTg3 or WD29UMPTg5 or WD25UMPTga1 or WD25UMPTga2 or WD25UMPTga3 or WD25UMPTga5 or WD2DUMPTg1 or WD2DUMPTg2 or WD2DUMPTg3 or WD2DUMPTg5 or WD2EUMPTg5;

UEIU is WD2M1UEIU;
FANd is WD2E1FAND;
FANe is WD2E1FANE or WD2E2FANE or WD2E3FANE;
UPEUd is WD2MUPEUD or WD2MUPEUD2.

4.4 Test Condition and Connection

4.4.1 Test Condition

The PC computer controls and monitors the BBU3910 work. The GNSS antenna is connected to the BBU3910 with the Coaxial Cable. The CPRI is loopback with fiber.

4.4.2 Test Connection

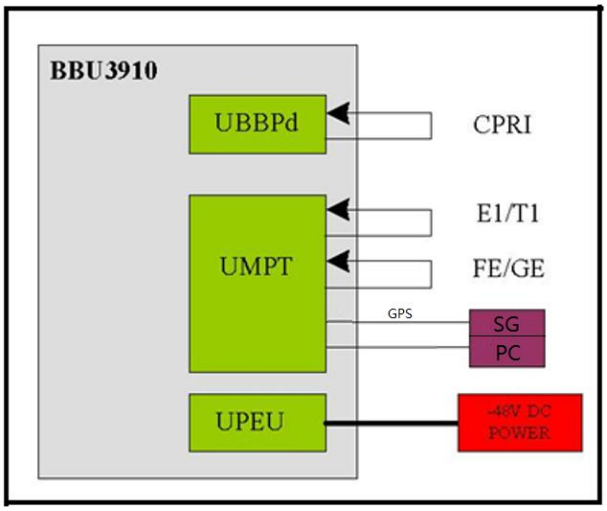


Figure 39. Test connection for TC1/TC2

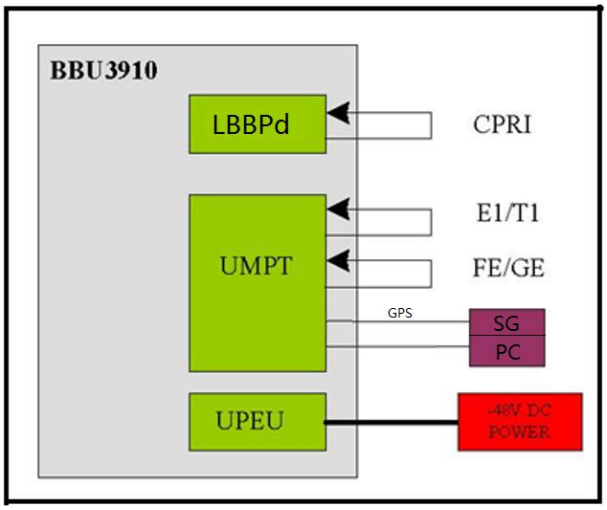


Figure 40. Test connection for TC3

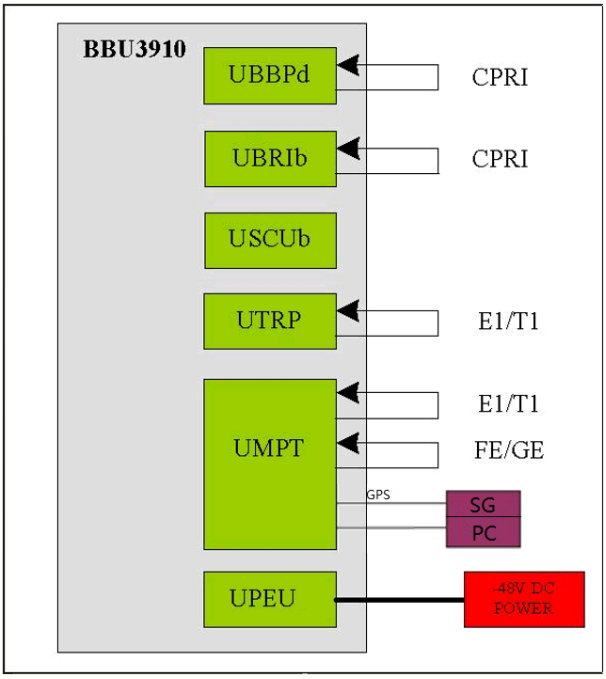


Figure 41. Test connection for TC4

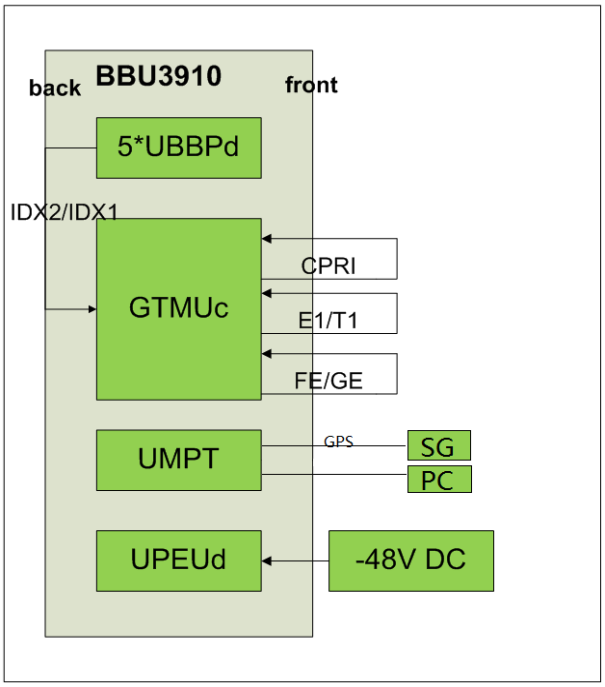


Figure 42. Test connection for TC5

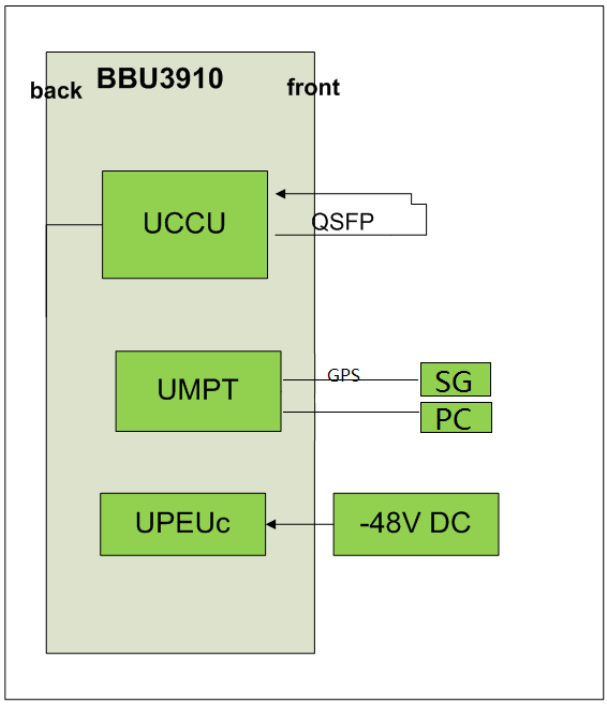


Figure 43. Test connection for TC6

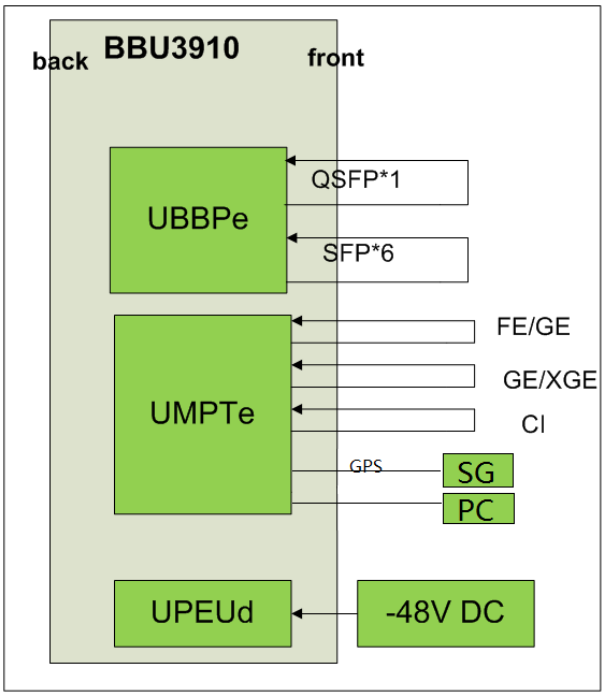


Figure 44. Test connection for TC7

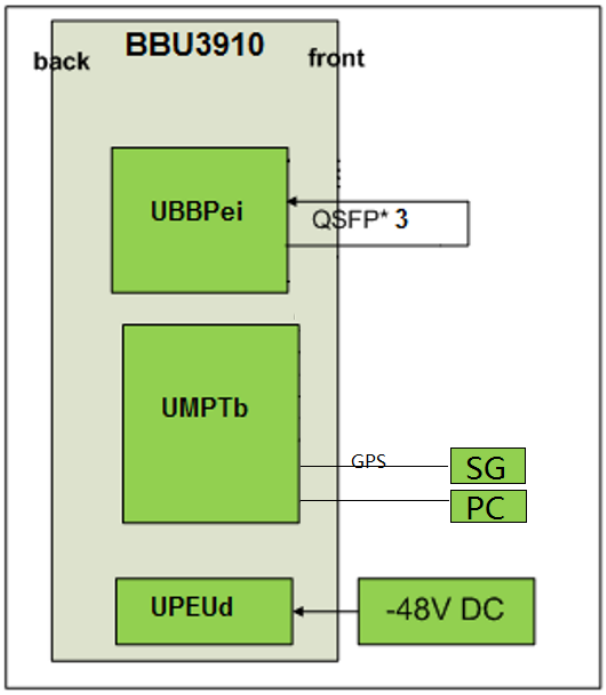


Figure 45. Test connection for TC8

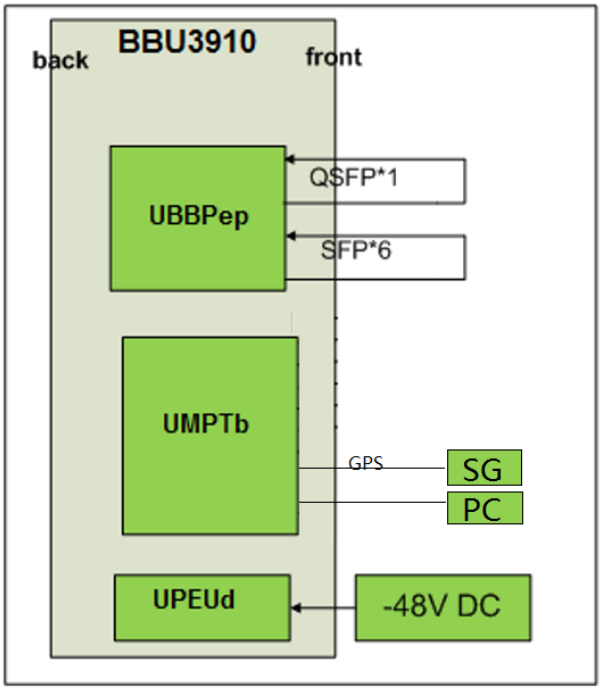


Figure 46. Test connection for TC9

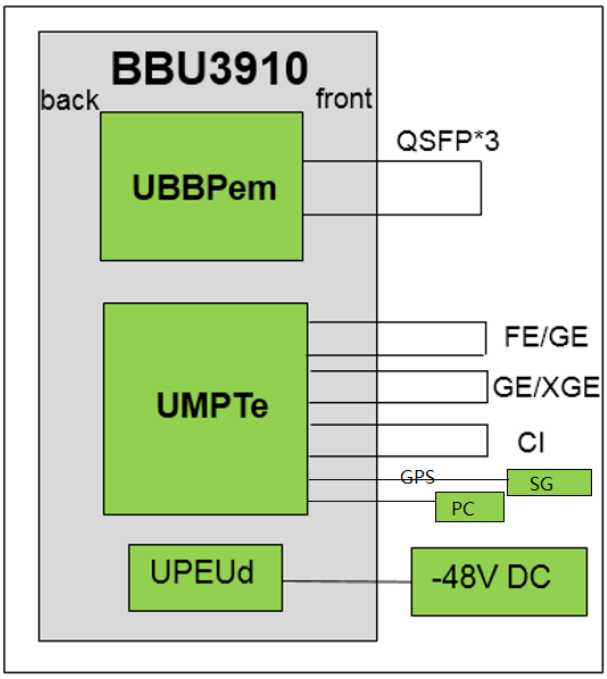


Figure 47. Test connection for TC10

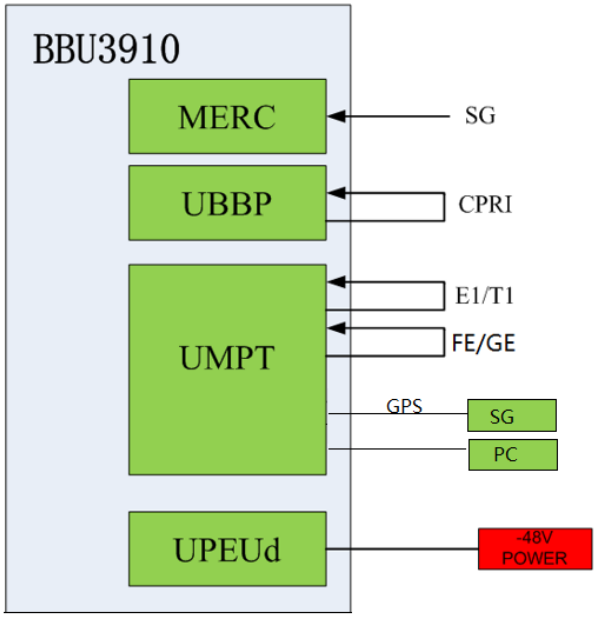


Figure 48. Test connection for TC11-TC14,TC16-TC17

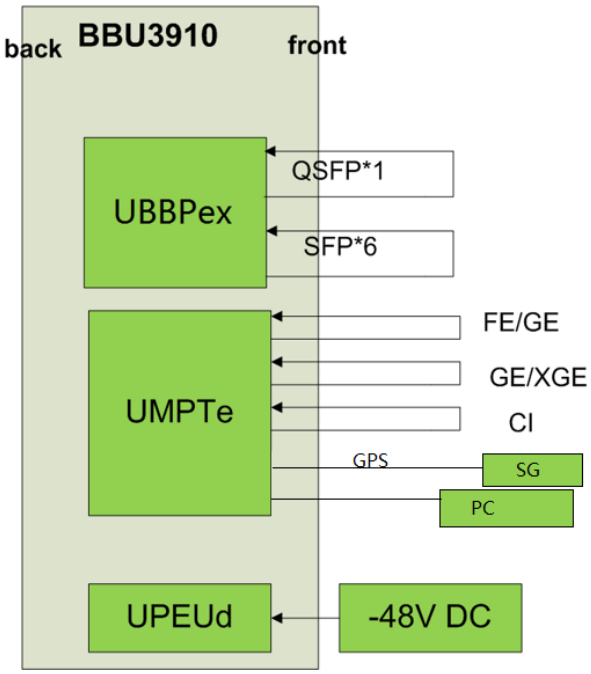


Figure 49. Test connection for TC15

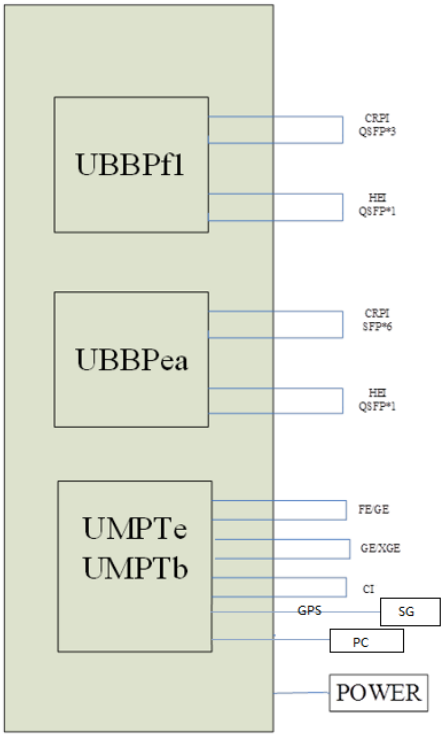


Figure 50. Test connection for TC18

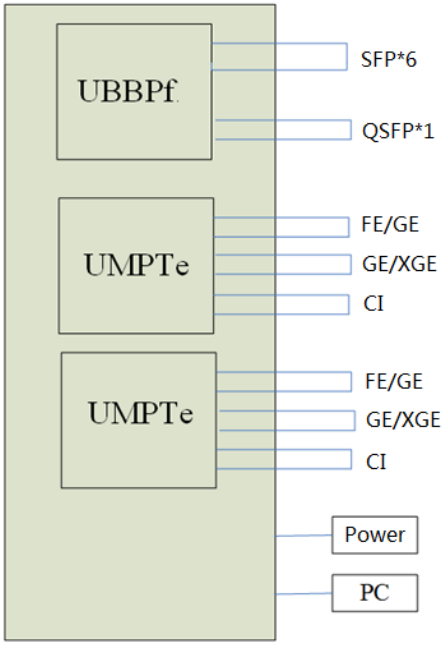


Figure 51. Test connection for TC19

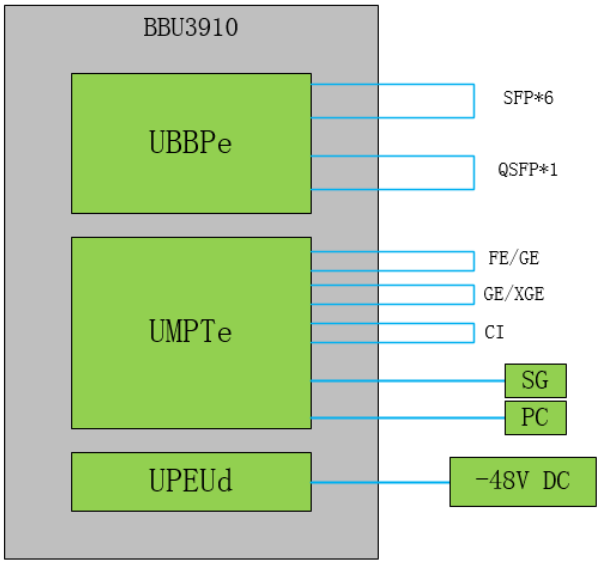


Figure 52. Test connection for TC20

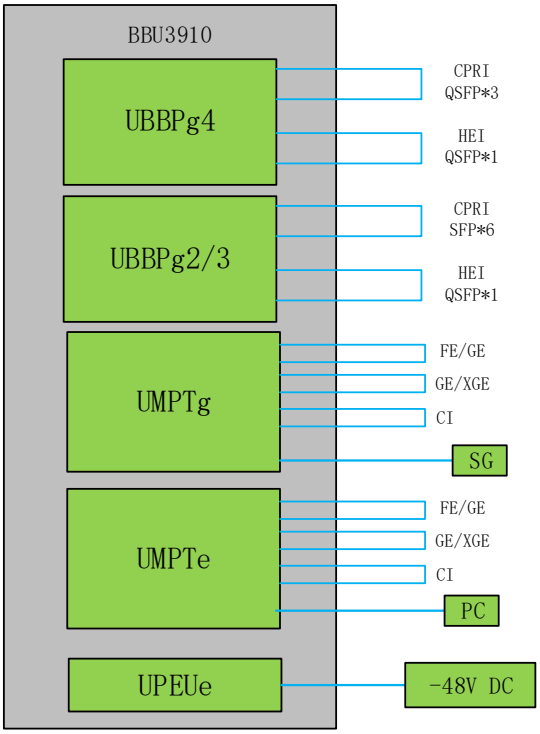


Figure 53. Test connection for TC21

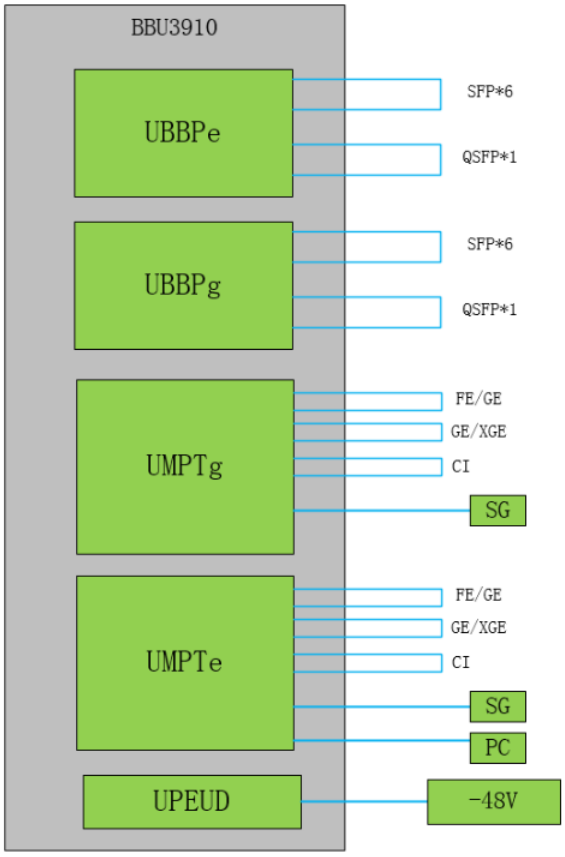


Figure 54. Test connection for TC22

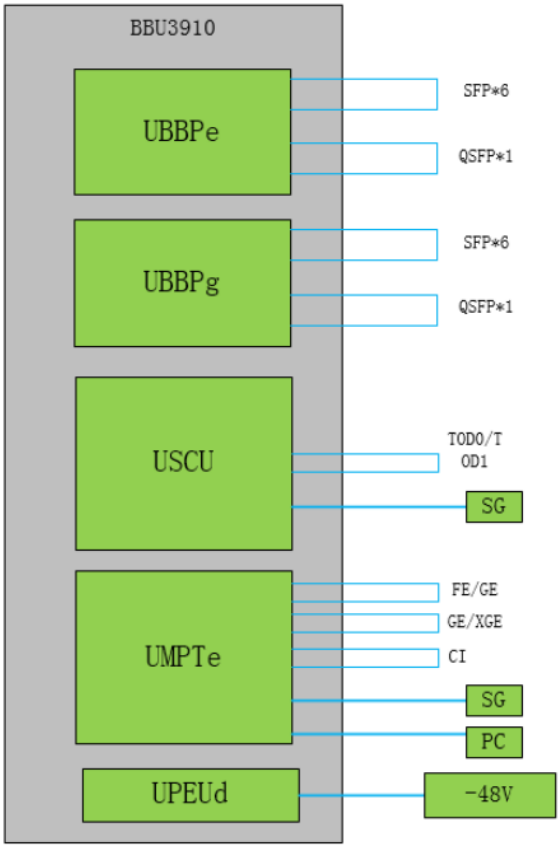


Figure 55. Test connection for TC23

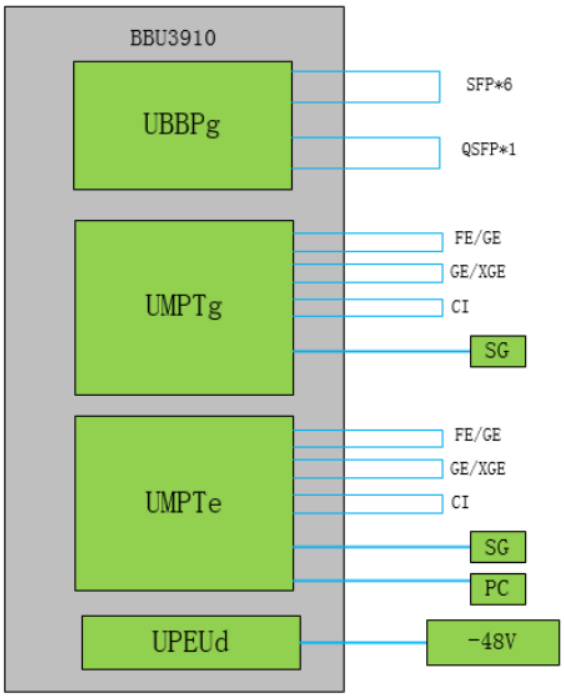


Figure 56. Test connection for TC24

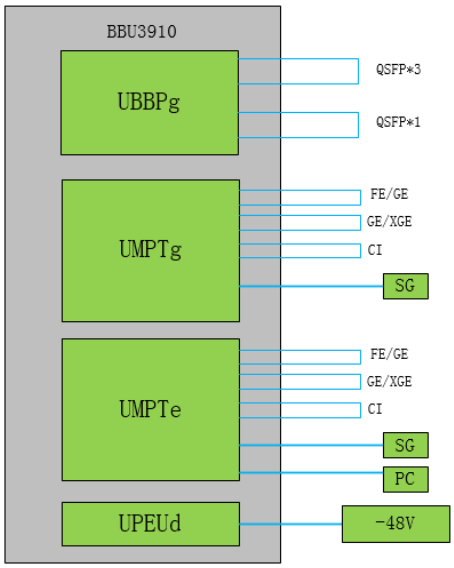


Figure 57. Test connection for TC25

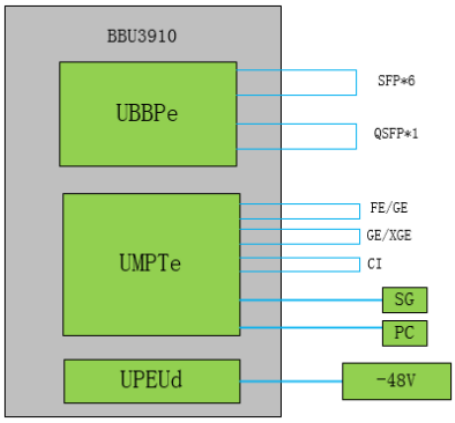


Figure 58. Test connection for TC26

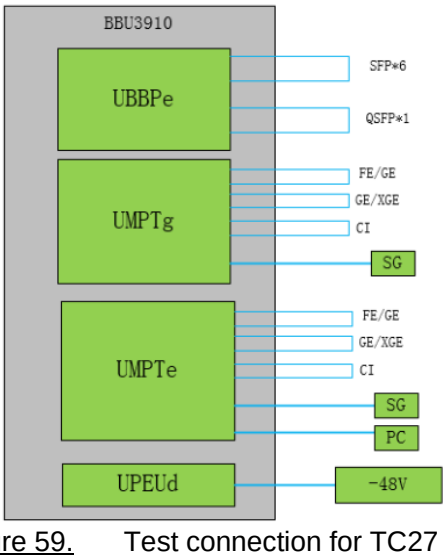


Figure 59. Test connection for TC27

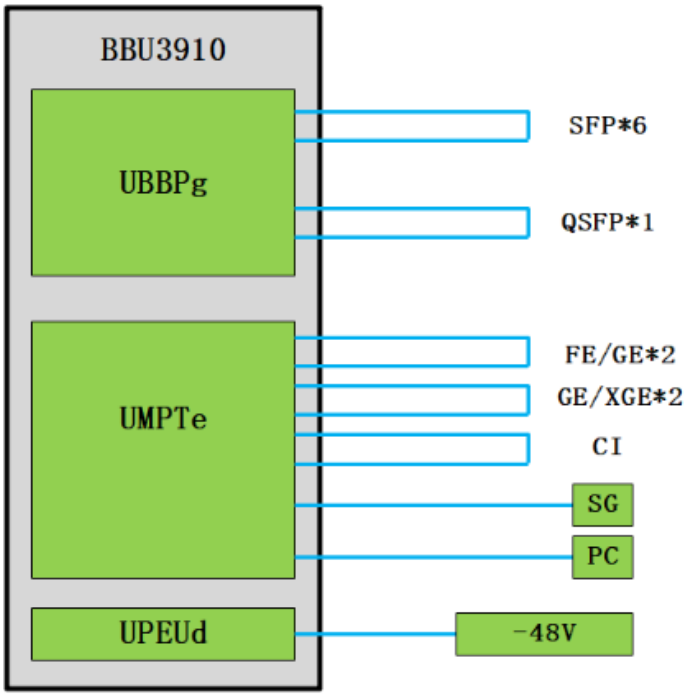


Figure 60. Test connection for TC28

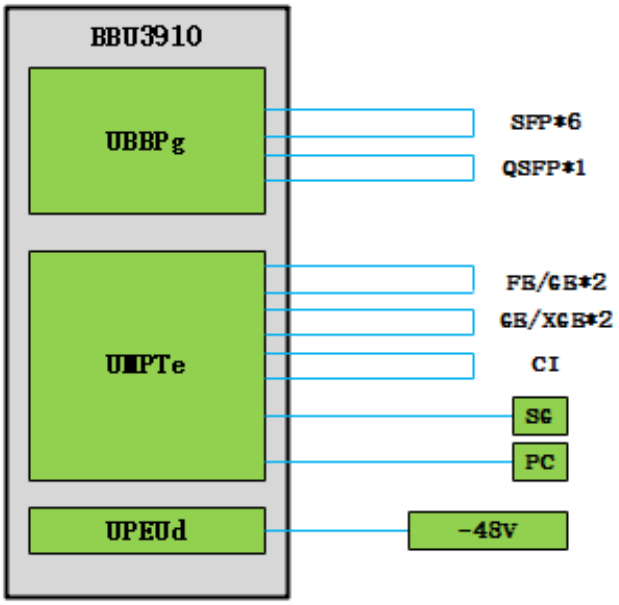


Figure 61. Test connection for TC29

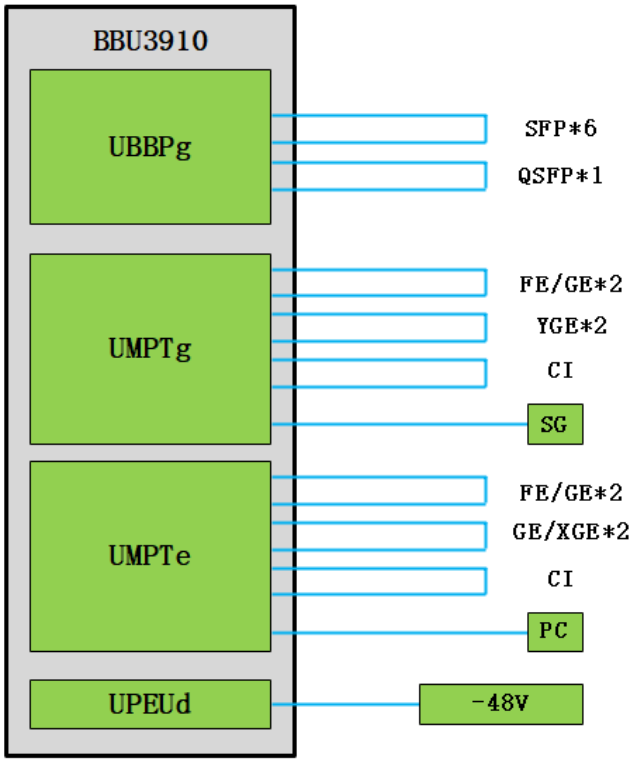


Figure 62. Test connection for TC30

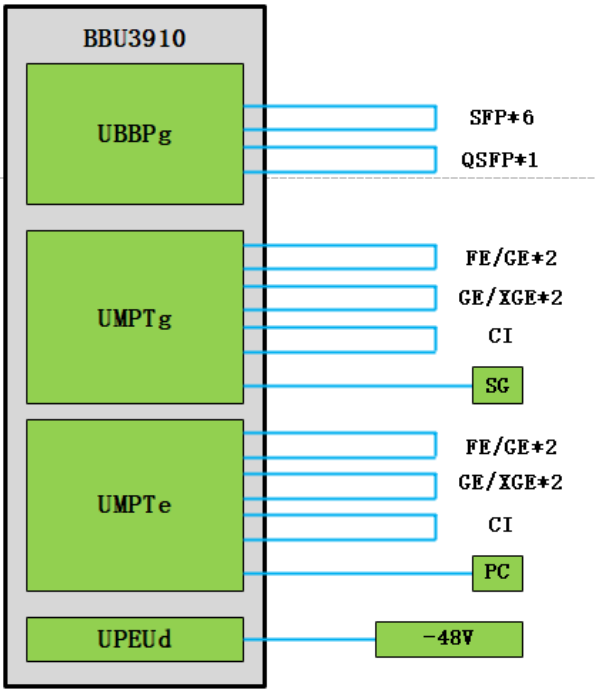


Figure 63. Test connection for TC31

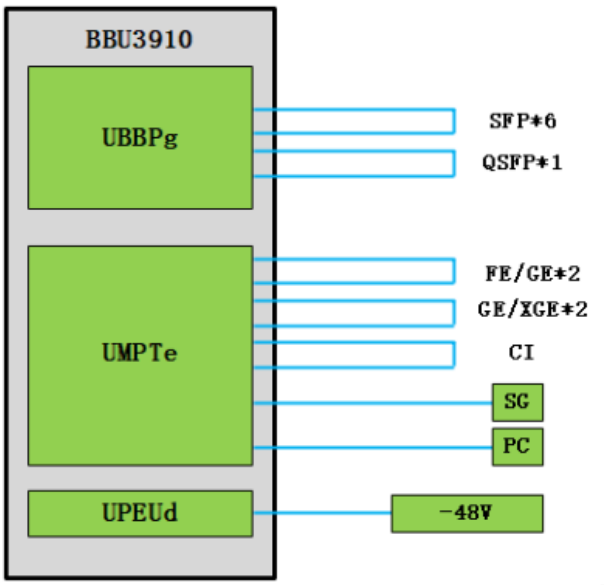


Figure 64. Test connection for TC32

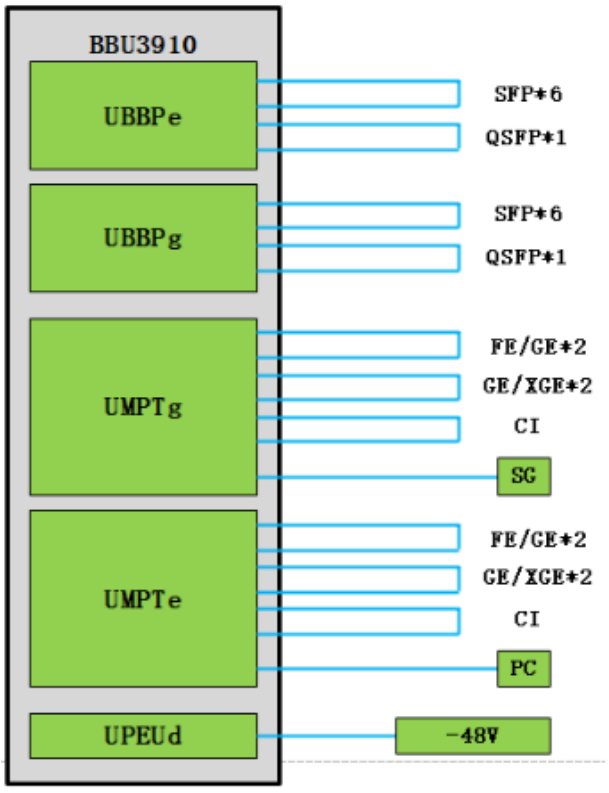


Figure 65. Test connection for TC33

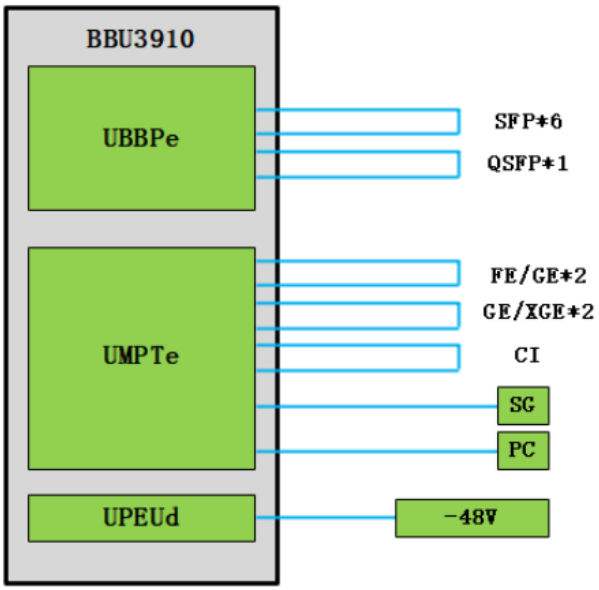


Figure 66. Test connection for TC34

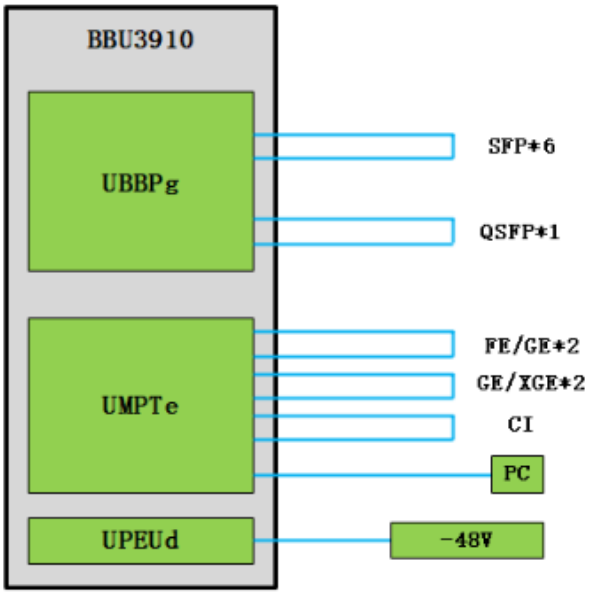


Figure 67. Test connection for TC35

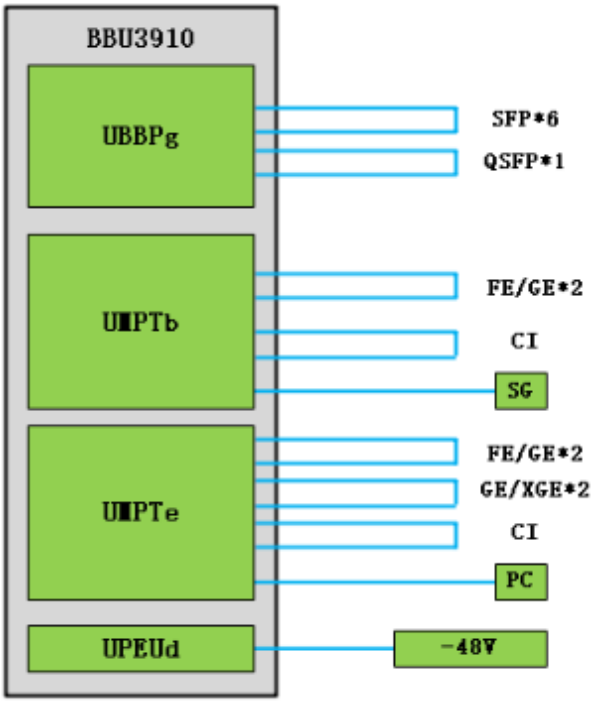


Figure 68. Test connection for TC36

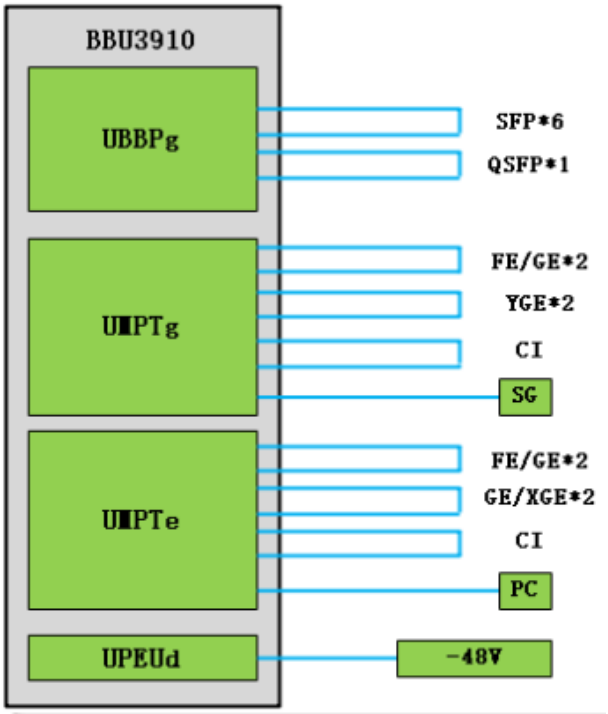


Figure 69. Test connection for TC37

5 Immunity Performance Criteria

During immunity test, the EUT is to be monitored for compliance against the performance criteria. The "pass/fail" performance criterion to be used during test is detailed below:

5.1 Performance Criterion for Continuous Phenomena

The EUT shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below the performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible performance loss. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

5.2 Performance Criterion for Transient Phenomena

The EUT shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below the performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible performance loss. During the test, degradation of performance is however allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

5.3 GPS function for the standard ETSI EN 301 489-19

No intentional responses of the EUT during the test, no false calls shall occur during the test, at the conclusion of the test maintenance of the EUT memory and the ability to receive and store messages shall operate as intended with no loss of functions or stored data (messages), as declared by the manufacturer. For the spot frequency test as part of the immunity test with radiated RF electromagnetic fields the EUT can receive the alert signal accurately.

5.4 Performance Criterion DC Voltage dips and interruptions

For a DC voltage dip and interruption test, the following performance criteria apply:
In the case where the equipment is powered solely from the DC mains supply (without the use of a parallel battery back-up) volatile user data may have been lost and if applicable the communication link need not to be maintained and lost functions should be recoverable by user or operator; no unintentional responses shall occur at the end of the test.

For a Voltage variations corresponding to 80%&120% variation level for the following performance criteria apply: the performance criteria for continuous phenomena and GPS function shall apply.

6 Electromagnetic Interference (EMI)

6.1 Radiated Emission 30 MHz to 6 GHz

6.1.1 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB in accordance with the standard CISPR 16-1-4. The test distance was 3 m for 30 MHz to 1 GHz.
The test site full-anechoic chamber has met the requirement of S_{VSWR} tolerance 6 dB in accordance with the standard CISPR 16-1-4. The test distance was 3 m for 1 GHz to 6 GHz.
The set-up and test methods were in accordance with EN 55032/CISPR 32 standards

A preliminary scan and a final scan of the emissions were made from 30 MHz to 6 GHz by using test software script; the emissions were measured using Quasi-Peak Detector (30 MHz-1 GHz) and Average /Peak Detector (above 1 GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software set-up. Normally, the antenna height ranged from 1 m to 4 m, and the turntable azimuth ranged from 0°to 360°, The receive antenna has two polarizations: Vertical and Horizontal.

The test set-up diagram is shown as below:

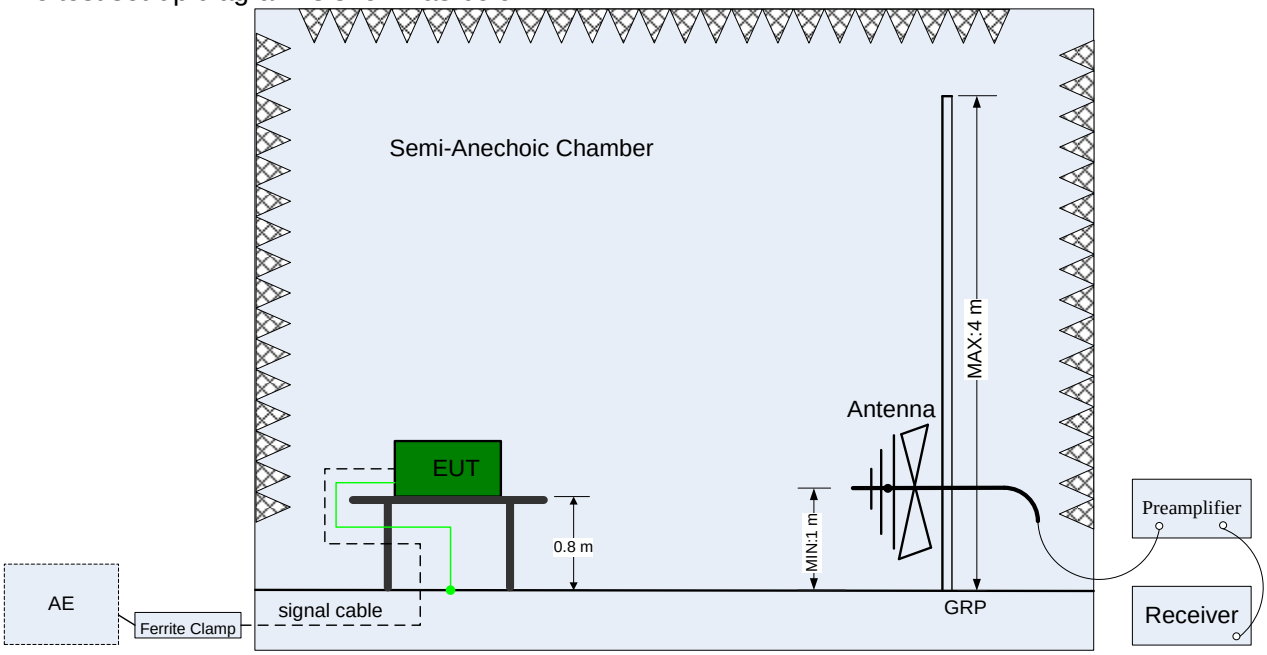


Figure 70. Test set-up of radiated disturbance (30MHz-1GHz)

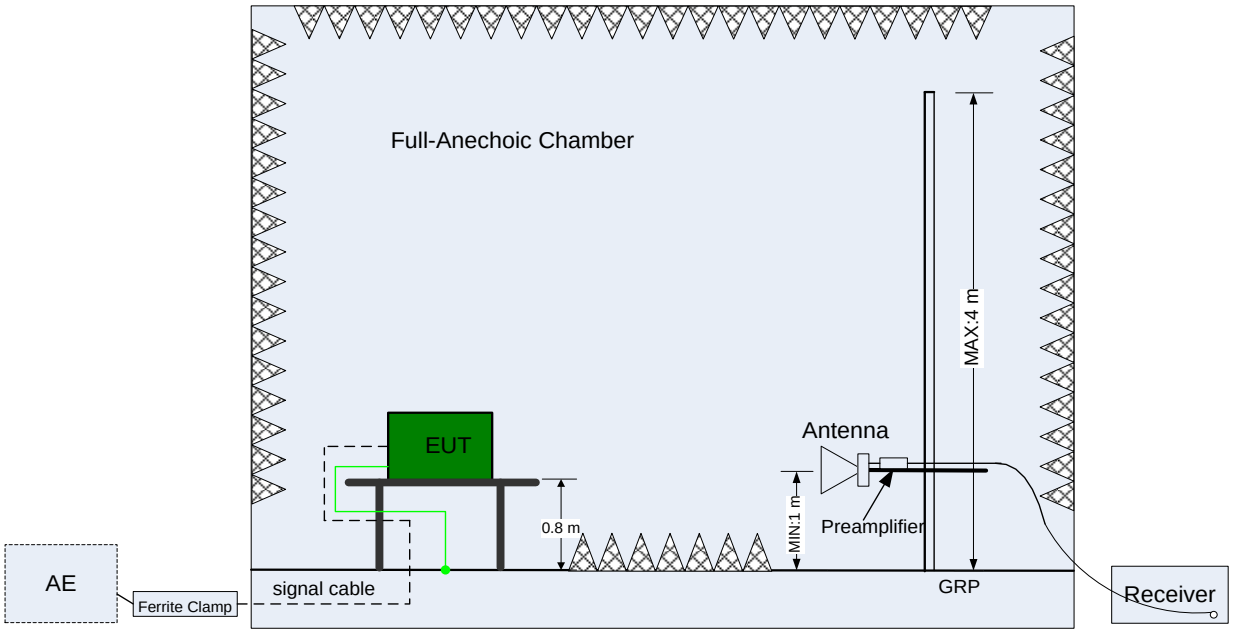


Figure 71. Test set-up of radiated disturbance (above 1GHz)

6.1.2 Test Limit

Table 8 Test limits of 30 MHz to 1 GHz at a measuring distance of 3m

Class A	
Frequency	Limit
30 MHz to 230 MHz	50 dBμV/m
230 MHz to 1 GHz	57 dBμV/m
Class B	
Frequency	Limit
30 MHz to 230 MHz	40 dBμV/m
230 MHz to 1 GHz	47 dBμV/m

Table 9 Test limits of 30 MHz to 1 GHz at a measuring distance of 10m

Class A	
Frequency	Limit
30 MHz to 230 MHz	40 dBμV/m
230 MHz to 1 GHz	47 dBμV/m
Class B	
Frequency	Limit
30 MHz to 230 MHz	30 dBμV/m
230 MHz to 1 GHz	37 dBμV/m

Table 10 Test limits of 1 GHz to 6 GHz at a measuring distance of 3m

Class A		
Frequency	AV	PK
1 GHz to 3 GHz	56 dBμV/m	76 dBμV/m
3 GHz to 6 GHz	60 dBμV/m	80 dBμV/m
Class B		
Frequency	AV	PK
1 GHz to 3 GHz	50 dBμV/m	70 dBμV/m
3 GHz to 6 GHz	54 dBμV/m	74 dBμV/m

6.1.3 Test Results

The EUT has met the requirements for radiated emission of the enclosure port.
For the test data, see section 10.1.

Table 11 Test Result

Test Configuration	Frequency Range	Distance(m)	Limit	Result
TC1-TC37	30MHz to 1GHz	3m	Class B	Pass
TC1-TC37	1GHz to 6GHz	3m	Class B	Pass

Note: The highest frequency of the internal sources of the EUT is 25.78125GHz, the measurement was made up to 6GHz.

6.2 Conducted Disturbance 0.15 MHz to 30 MHz

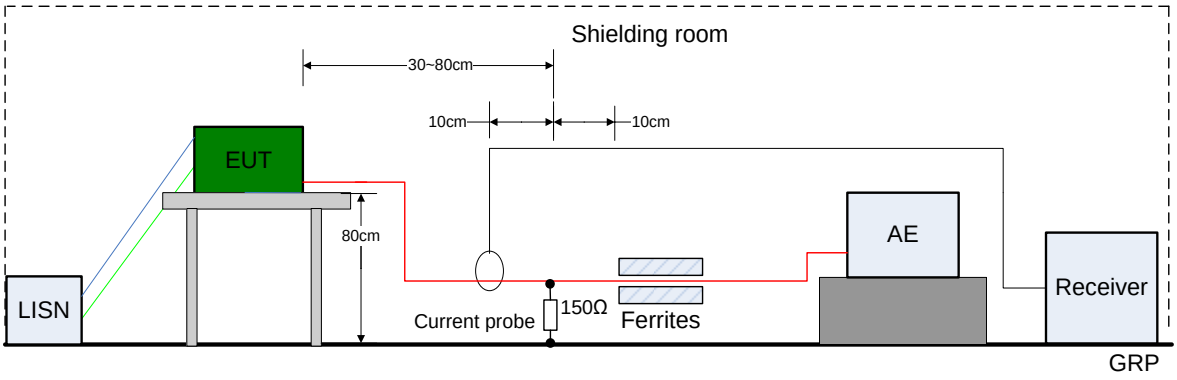
6.2.1 Test Procedure

The EUT was configured as described in section 4 for this test. The mains cable of the EUT must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8 m from the LISN.

All wired network ports and signal ports must be correctly terminated using either appropriate associated equipment or a representative termination during the measurement of the conducted disturbances at the mains.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

The set-up of Conducted Disturbance for power port and wired network ports were in accordance with EN 55032/CISPR 32 standards. The test set-up diagram is shown as below:



Note: The 150 Ω resistance was connected to the outside surface of the shield.

Figure 72. Test set-up of conducted disturbance for wired network ports & antenna port (shielded cable)

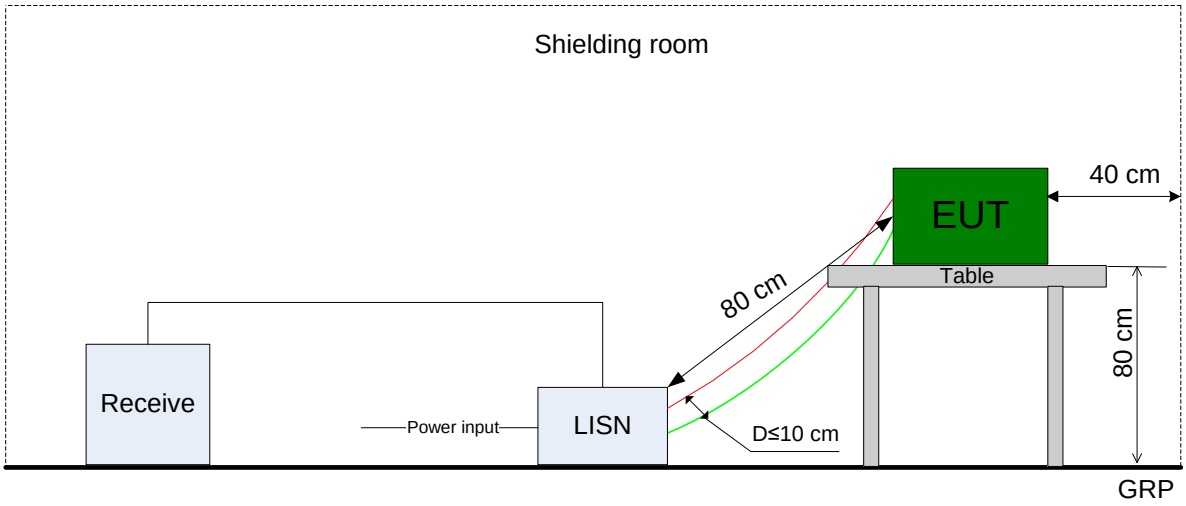


Figure 73. Test set-up of conducted disturbance for power port

6.2.2 Test Limit

Table 12 Limits of wired network ports & antenna port

Class A				
Frequency	Voltage limits (dBμV)		Current limits (dBμA)	
	QP	AV	QP	AV
0.15 to 0.5 MHz	97 to 87	84 to 74	53 to 43	40 to 30
0.5 to 30 MHz	87	74	43	30
Class B				
Frequency	Voltage limits (dBμV)		Current limits (dBμA)	
	QP	AV	QP	AV
0.15 MHz to 0.5 MHz	84 to 74	74 to 64	40 to 30	30 to 20
0.5 MHz to 30 MHz	74	64	30	20

Table 13 Limits of DC&AC power port

Class A		
Frequency	Voltage limits (dBμV)	
	QP	AV
0.15 MHz to 0.5 MHz	79	66
0.5 MHz to 30 MHz	73	60
Class B		
Frequency	Voltage limits (dBμV)	
	QP	AV
0.15 MHz to 0.5 MHz	66 to 56	56 to 46
0.5 MHz to 5 MHz	56	46
5 MHz to 30 MHz	60	50

6.2.3 Test Results

The EUT has met requirements for conducted disturbance.
For the test data, see section 10.2.

Table 14 Test result of conducted disturbance

Test Configuration	Ports	Cable Type	Sampling Network	Limit	Result
TC1-TC37	DC	N/A	ENV4200	Class B	Pass
TC1-TC37	FE	Shielded	Current Probe	Class B	Pass
TC1-TC37	GE	Shielded	Current Probe	Class B	Pass
TC1-TC6; TC8-TC9; TC11-TC14; TC16-TC18;	E1	Shielded	Current Probe	Class B	Pass
TC1-TC37	GNSS port	Shielded	Current Probe	Class B	Pass
TC23	RGPS	Shielded	Current Probe	Class B	Pass
TC23	TOD	Shielded	Current Probe	Class B	Pass
TC23	BITS	Shielded	Current Probe	Class B	Pass

7 Electromagnetic Susceptibility (EMS)

7.1 Electrostatic Discharge

7.1.1 Test Procedure

The EUT was configured as described in section 4 for this test. The set-up and test methods were in accordance with IEC 61000-4-2 standard.
The test environment condition was recorded in the following table:

Table 15 Test environment condition during ESD test

Ambient temperature	25°C
Relative humidity	50%
Atmospheric pressure	101kPa

The test set-up diagram is shown as below:

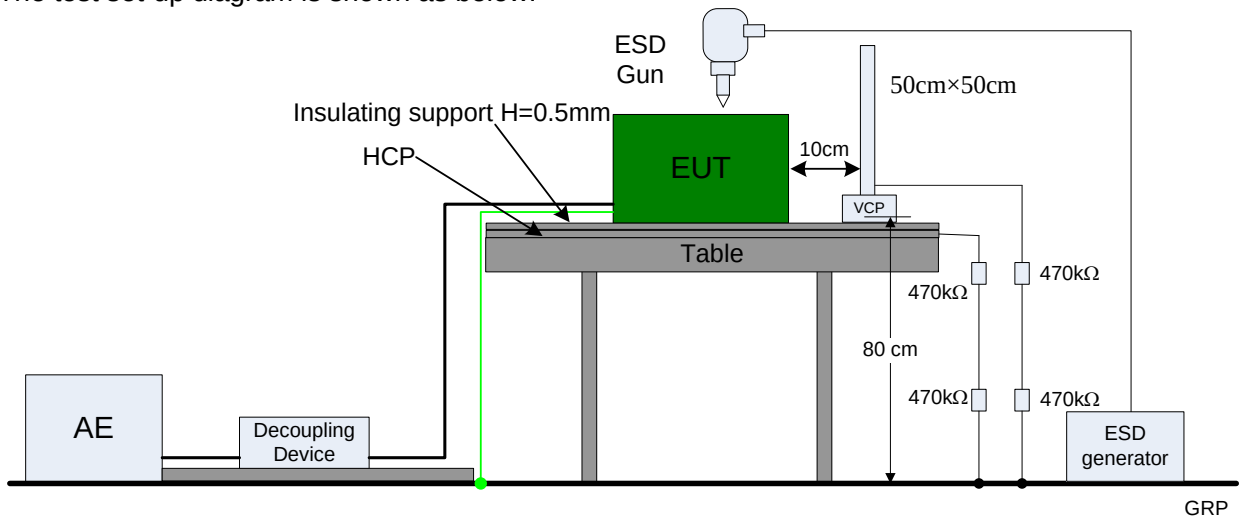


Figure 74. Test set-up of electrostatic discharge

7.1.2 Test Results

The EUT has met the requirements of Performance Criterion for Transient Phenomena and section 5.3 defined in section 5.
All of the discharge points were presented in the table below, each discharge point was tested for 20 times (10 times for positive and negative), the minimum discharge interval was 1 second.

Table 16 Test results

Test Point	Test Mode	Test Level (kV)	Performance Criterion	Description	Result
Horizontal coupling plane-front	C	±2, ±4, ±6, ±8	Performance criterion for transient phenomena; &Refer to section 5.3;	No failure detected	Pass
Horizontal coupling plane-rear	C	±2, ±4, ±6, ±8		No failure detected	Pass
Horizontal coupling plane-left	C	±2, ±4, ±6, ±8		No failure detected	Pass
Horizontal coupling plane-right	C	±2, ±4, ±6, ±8		No failure detected	Pass
Vertical coupling plane-front	C	±2, ±4, ±6, ±8		No failure detected	Pass
Vertical coupling plane-rear	C	±2, ±4, ±6, ±8		No failure detected	Pass

Vertical coupling plane-left	C	±2, ±4, ±6, ±8		No failure detected	Pass
Vertical coupling plane-right	C	±2, ±4, ±6, ±8		No failure detected	Pass
Cabinet enclosure	C	±2, ±4, ±6, ±8		No failure detected	Pass
Connectors	C	±2, ±4, ±6, ±8		No failure detected	Pass
Screw of frames	C	±2, ±4, ±6, ±8		No failure detected	Pass
Board panels	C	±2, ±4, ±6, ±8		No failure detected	Pass
Board gap	A	±2, ±4, ±8, ±15		No failure detected	Pass
Radiator hole	A	±2, ±4, ±8, ±15		No failure detected	Pass
Indication lamp	A	±2, ±4, ±8, ±15		No failure detected	Pass

Note: “C” means Contact Discharge, “A” means Air Discharge

7.2 Immunity to Radiated Electric Fields 80 MHz to 6000 MHz

7.2.1 Test Procedure

The EUT was configured as described in section 4. The set-up and test methods were in accordance with IEC 61000-4-3 standard. All sides of the EUT (front, rear, left and right) were tested using an antenna with vertical and horizontal polarization.

Table 17 Test requirements

Test Side of EUT	Front, rear, left and right
Field Modulation	80% amplitude modulation at 1kHz sine wave
Exclusion Band	1481.05 MHz-1690.5 MHz
Maximum Step Size	1%
Swept-Frequency Dwell Time	1 second
Special Frequency points	80 MHz, 120 MHz, 160 MHz; 230 MHz; 434 MHz; 450 MHz;460 MHz; 600 MHz; 850 MHz; 863 MHz and 900 MHz; 1750MHz; 1800 MHz;1950MHz; 2100 MHz and 2400 MHz (±1%).122.88 MHz; 125 MHz
Special Frequency Dwell Time	60 seconds

The test set-up diagram is shown as below:

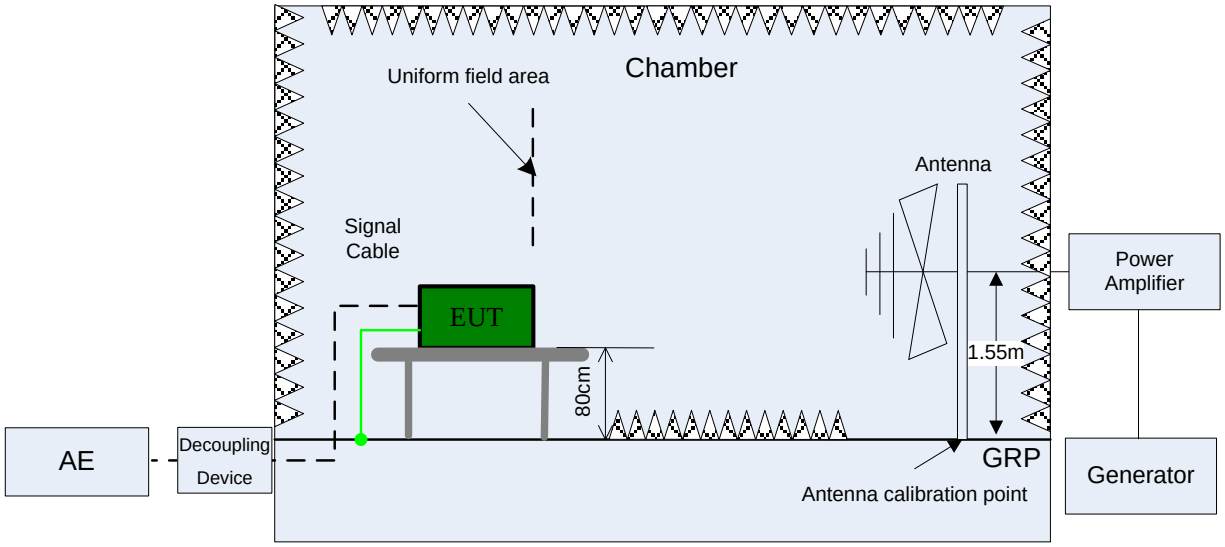


Figure 75. Test set-up of immunity to radiated electric fields

7.2.2 Test Results

The EUT has met the requirements of Performance Criterion for Continuous Phenomena and section 5.3 defined in section 5 for Immunity to Radiated Electric Fields of enclosure port.

Table 18 Test results

Frequency Range	Polarization	Test Level (Unmodulated, rms)	Performance Criterion	Description	Result
80MHz to 1000MHz	Horizontal and Vertical	10V/m (rms)	Performance criterion for continuous phenomena; &Refer to section 5.3;	No failure detected	Pass
1000MHz to 6000MHz	Horizontal and Vertical	10V/m (rms)		No failure detected	Pass

7.3 Immunity to Electrical Fast Transient Bursts

7.3.1 Test Procedure

The EUT was configured as described in section 4. A series of fast transient bursts meeting the specification were applied for a period of 120 seconds. The transient bursts were applied for both Positive and Negative Burst Trains to each type of signal port and power Port. The set-up and test methods were in accordance with IEC 61000-4-4 standard.

Table 19 Parameter of single pulse and fast transient /burst

Rise Time of Single Pulse (Tr):	5 ns
Duration of Single Pulse (Th):	50 ns
Pulse Repetition Rate:	5 kHz
Burst Duration :	15 ms
Burst Period:	300 ms

The test set-up diagram is shown as below:

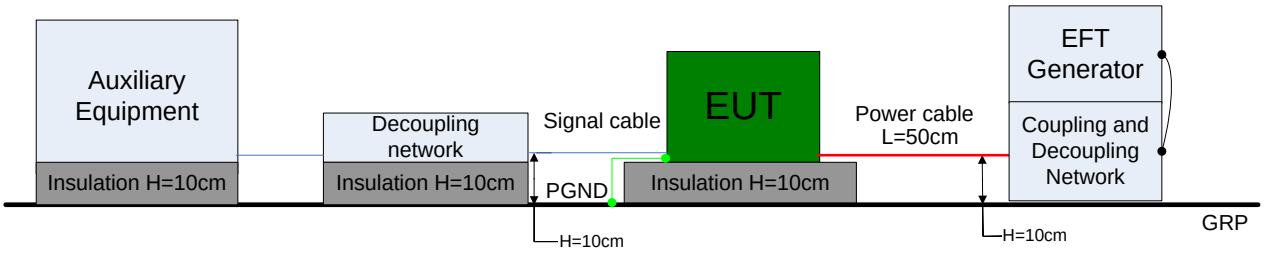


Figure 76. Test set-up of electrical fast transient bursts for power port

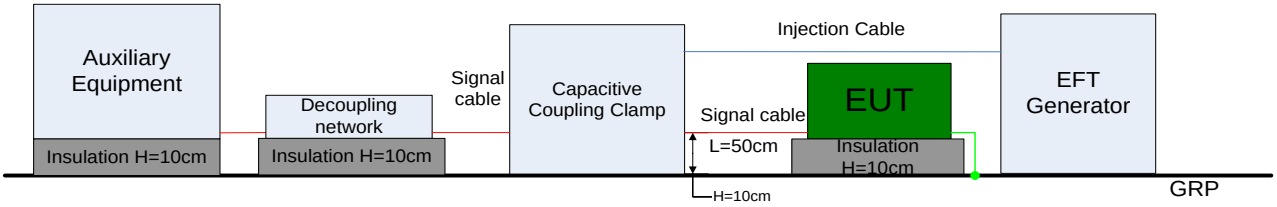


Figure 77. Test set-up of electrical fast transient bursts for signal ports

7.3.2 Test Results

The EUT has met the requirements of Performance Criterion for Transient Phenomena and section 5.3 defined in section 5.

Table 20 Test results

Ports	Coupling Mode	Test Level	Duration	Performance Criterion	Description	Result
DC	-48V	±1kV/2kV	2 minutes	Performance criterion for transient phenomena; &Refer to section 5.3;	No failure detected	Pass
DC	RTN	±1kV/2kV	2 minutes		No failure detected	Pass
DC	PE	±1kV/2kV	2 minutes		No failure detected	Pass
DC	-48V+RTN	±1kV/2kV	2 minutes		No failure detected	Pass
DC	RTN+PE	±1kV/2kV	2 minutes		No failure detected	Pass

DC	-48V+PE	±1kV/2kV	2 minutes		No failure detected	Pass
DC	-48V+RTN+PE	±1kV/2kV	2 minutes		No failure detected	Pass
E1	CDN8014	±1kV	2 minutes		No failure detected	Pass
FE	CDN8014	±1kV	2 minutes		No failure detected	Pass
GE	CDN8014	±1kV	2 minutes		No failure detected	Pass
RGPS	CDN8014	±1kV	2 minutes		No failure detected	Pass
TOD	CDN8014	±1kV	2 minutes		No failure detected	Pass

Note: RTN is short for return lead

7.4 Immunity to Surges

7.4.1 Test Procedure

The EUT was configured as described in section 4 for this test. The set-up and test methods were in accordance with IEC 61000-4-5 standard.

The test set-up diagram is shown as below:

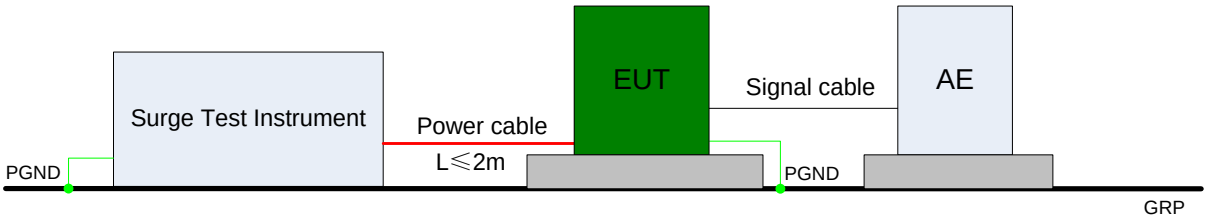


Figure 78. Test set-up of immunity to surge for power port

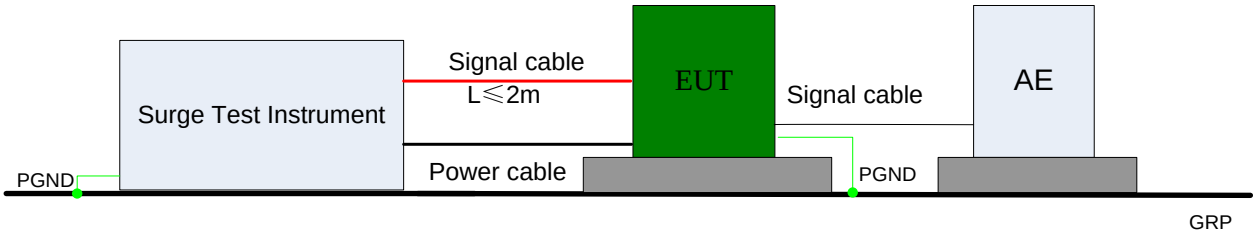


Figure 79. Test set-up of immunity to surge for signal Port

7.4.2 Test Results

The EUT has met the requirements of Performance Criterion for Transient Phenomena and section 5.3 defined in section 5.

Table 21 Test results

Ports	Waveform (μs)	Coupling Mode	Coupling Impedance (ohm)	Phase	Test Level	Rep Times	Description	Result
DC	1.2/50	-48V to RTN	2	Asyn	±2kV	5	No failure detected	Pass
DC	1.2/50	-48V to ground	12	Asyn	±4kV	5	No failure detected	Pass
DC	1.2/50	RTN to ground	12	Asyn	±4kV	5	No failure detected	Pass
DC	1.2/50	-48V+RTN to ground	12	Asyn	±4kV	5	No failure detected	Pass
FE	1.2/50	Line to ground	42	Asyn	±2kV	5	No failure detected	Pass
GE	1.2/50	Line to ground	42	Asyn	±2kV	5	No failure detected	Pass

E1	1.2/50	Line to line	42	Asyn	±1kV	5	No failure detected	Pass
E1	1.2/50	Line to ground	42	Asyn	±2kV	5	No failure detected	Pass
RGPS	1.2/50	Line to line	42	Asyn	±1kV	5	No failure detected	Pass
RGPS	1.2/50	Line to ground	42	Asyn	±2kV	5	No failure detected	Pass
TOD	1.2/50	Line to line	42	Asyn	±1kV	5	No failure detected	Pass
TOD	1.2/50	Line to ground	42	Asyn	±2kV	5	No failure detected	Pass

Note: RTN is short for return lead

7.5 Immunity to Continuous Conducted Interference 0.15 MHz to 80 MHz

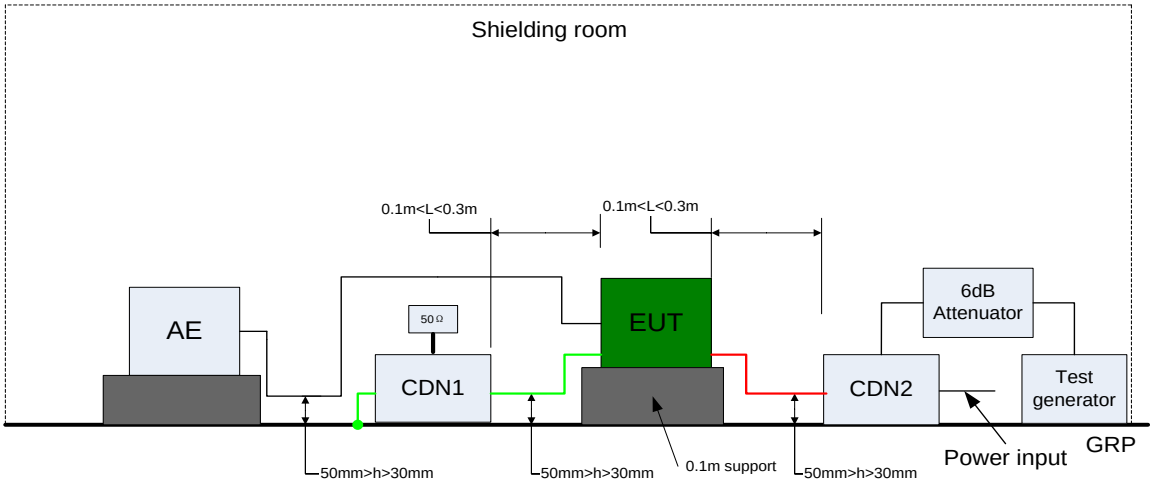
7.5.1 Test Procedure

The EUT was configured as described in section 4. The applied level was amplitude modulated by a 1 kHz sinusoidal signal to a modulation depth of 80%. The set-up and test methods were in accordance with IEC 61000-4-6 standard.

Table 22 Test requirements

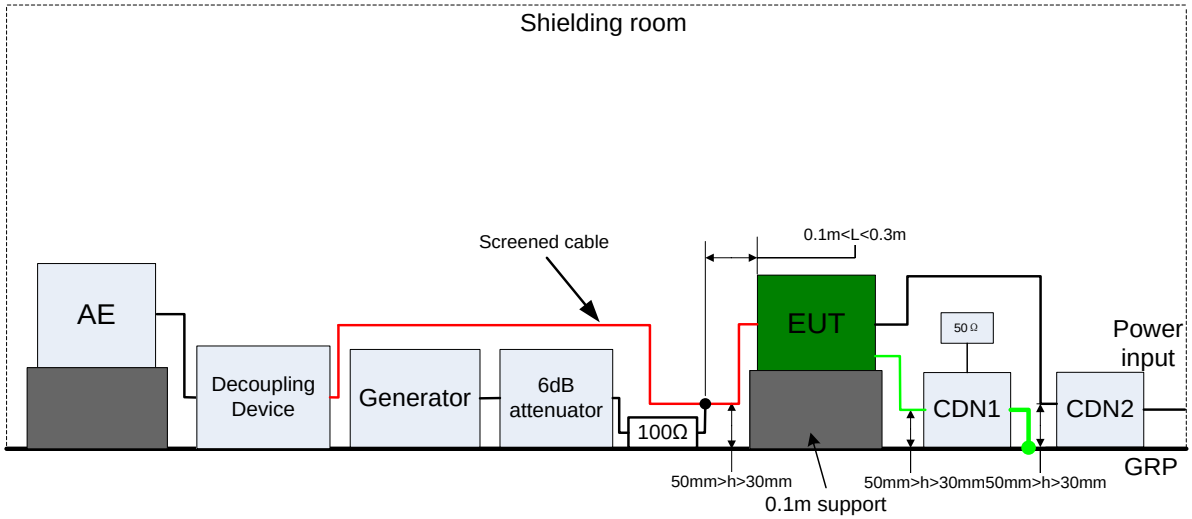
Sweep Frequency Range:	0.15 MHz to 80 MHz
Field Modulation:	80% Amplitude modulation at 1kHz sine wave
Maximum Step Size:	1%
Swept-Frequency Dwell Time:	1 second
Special Frequency Point:	0.2MHz;1MHz;7.1MHz;13.56MHz;21MHz;27.12MHz;40.68MHz; 2.048MHz; 25 MHz; 50 MHz; 3.84 MHz; 15.36 MHz; 61.44 MHz
Special Frequency Dwell Time:	60 seconds

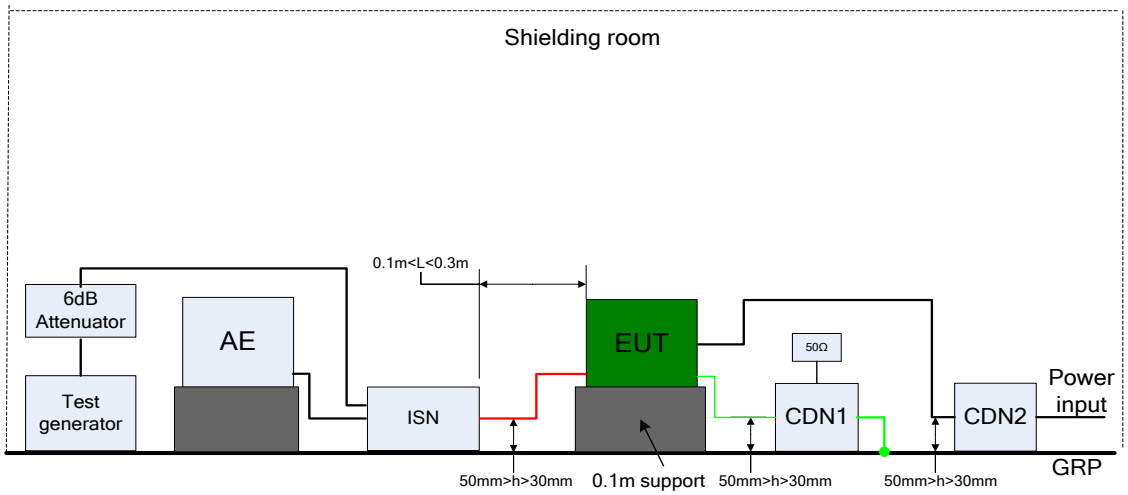
The test set-up diagram is shown as below:



The cable connected to the EUT: red is power cable; green is earthing cable; black is signal cable

Figure 80. Test set-up of immunity to continuous conducted interference for power port





The cable connected to the EUT: red is screened signal cable; green is earth cable; black is power cable

Figure 81. Test set-up of immunity to continuous conducted interference for signal port with shielded cable

7.5.2 Test Results

The EUT has met the requirements of Performance Criterion for Continuous Phenomena and section 5.3 defined in section 5 for immunity to continuous conducted interference.

Table 23 Test results of signal ports

Port	Cable Type	Test Level (Unmodulated)	Coupling Method	Description	Conclusion
E1	Shielded	10 V (rms)	Direct inject	No failure detected	Pass
FE	Shielded	10 V (rms)	CDN ST08AS	No failure detected	Pass
GE	Shielded	10 V (rms)	CDN ST08AS	No failure detected	Pass
RGPS	Shielded	10 V (rms)	Direct inject	No failure detected	Pass
TOD	Shielded	10 V (rms)	Direct inject	No failure detected	Pass

Table 24 Test results of DC power port

Ports	Test Level (Unmodulated)	Inject method	Description	Conclusion
DC Power Port	10 V (rms)	CDN-M2	No failure detected	Pass
Earth	10 V (rms)	CDN-M1	No failure detected	Pass

7.6 Immunity to Voltage Dips and Short Interruption and Voltage Variation of DC Power Port

7.6.1 Test Procedure

The EUT was configured as described in section 4. The set-up and test methods were in accordance with IEC 61000-4-29 standard.

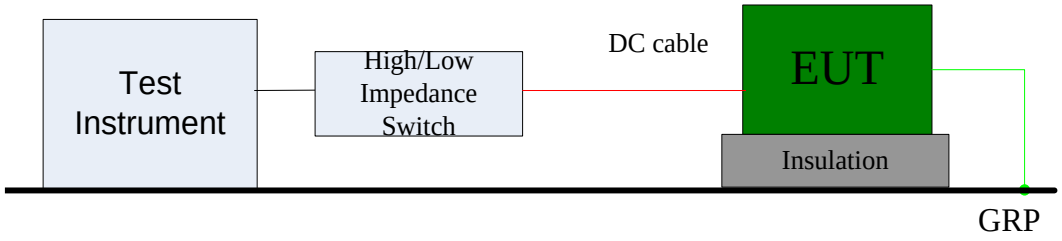


Figure 82. Test Set-up of Voltage Dips and Short Interruption and Voltage Variation of DC Power Port

7.6.2 Test Results

The EUT has met the requirements Performance Criterion defined in section 5.4.

Table 25 Test results for -48V DC power supply(without battery)

Test Items	Dip to Ut	Impedance	Duration	Rep. Times	Interval	Performance Criterion	Phenomenon	Result
Voltage Variation	120%	Low impedance	100ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	120%	Low impedance	300ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	120%	Low impedance	1s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	120%	Low impedance	3s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	120%	Low impedance	10s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	80%	Low impedance	100ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	80%	Low impedance	300ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	80%	Low impedance	1s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	80%	Low impedance	3s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage Variation	80%	Low impedance	10s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	70%	Low impedance	1ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	70%	Low impedance	3ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	70%	Low impedance	10ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	70%	Low impedance	30ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	70%	Low impedance	100ms	3	10s	Refer to section 5.4	No failure detected	Pass

Voltage DIPs	70%	Low impedance	300ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	70%	Low impedance	1s	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	1ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	3ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	10ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	30ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	100ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	300ms	3	10s	Refer to section 5.4	No failure detected	Pass
Voltage DIPs	40%	Low impedance	1s	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	1ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	3ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	10ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	30ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	100ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	300ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	Low impedance	1s	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	1ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	3ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	10ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	30ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	100ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	300ms	3	10s	Refer to section 5.4	No failure detected	Pass
Short interruption	0%	High impedance	1s	3	10s	Refer to section 5.4	No failure detected	Pass

8 Main Test Instruments

Table 26 Main test instruments

Test Item	Test Instrument	Model (S/N)	Manufacturer	Calibration Date	Calibration Interval (Month)
Radiated emission (3m chamber)	EMI Test Receiver	ESU40 (100303)	R&S	2020-08-28	12
	Bilog antenna	VULB 9163 (549)	SCHWARZBECK	2020-06-30	24
	Horn antenna	9120D (879)	SCHWARZBECK	2020-09-26	24
	Chamber _NSA	3m chamber	Albatross	2020-04-02	24
	Chamber _S_{VSWR}	3m chamber	Albatross	2020-04-01	24
Radiated Emission (10m chamber)	Spectrum Analyzer	E4447A (MY52090002)	Agilent	2020-08-28	12
	EMI receiver	N9038A (MY51210233)	Agilent	2021-02-01	12
	Bilog antenna	VULB 9163 (481)	SCHWARZBECK	2020-06-30	24
	Bilog antenna	VULB 9163 (549)	SCHWARZBECK	2020-06-30	24
	Chamber _NSA	10m chamber	Albatross	2020-01-16	24
Conducted emission 2#	EMI test receiver	ESR3 (101505)	R&S	2020-08-27	12
	Artificial mains network	ENV4200 (100141)	R&S	2021-01-30	12
	Current probe	F-52 (111659)	FCC	2021-06-08	12
Electrostatic discharge	ESD simulator	NSG437 (398)	Teseq	2020-07-15	12
Immunity to radiated electric fields	Signal Generator	SG6000 (327339)	Aglient	2020-08-28	12
	Broadband Antenna	STLP 9128D (9128D036)	SCHWARZBECK	N/A	12
	Broadband antenna	STLP 9149 (9149-121)	SCHWARZBECK	N/A	12
	Amplifier	500W1000A (337312)	AR	2021-01-28	12
	Amplifier	175S1G4M3 (340318)	AR	2021-01-28	12
	Amplifier	NTWPAS-4060100 (16089043)	rflight	2020-08-28	12
Electrical fast transient bursts	EMC simulator	EFT 500G (ES0241904)	3CTEST	2020-08-27	12
	Coupling decoupling network	EFTN 1550T (ES4061901)	3CTEST	2020-08-27	12
	Coupling clamp	CDN8014 (31839)	Teseq	2020-08-27	12

SURGE	High energy pulse generator	VCS500N 10T (V1121109603)	EMTEST	2021-01-25	12
	Coupling decoupling network	CNV 503S12 (V1231113305)	EMTEST	2021-01-26	12
	Coupling decoupling network	CNV504 S9 (V1121109605)	EMTEST	2021-01-26	12
	Coupling decoupling network	CNV504 N3.3 (V1121109607)	EMTEST	2021-01-26	12
	Coupling decoupling network	CNV 508 S16 (V1121109606)	EMTEST	2021-01-26	12
Immunity to continuous conducted interference	Signal generator	SMC100A (102618)	R&S	2020-08-29	12
	Amplifier	BBA100 (100984)	R&S	2021-01-29	12
	Coupling decoupling network	FCC-801-CDN-M2/M3 (111654)	FCC	2020-08-28	12
	Coupling decoupling network	FCC-801-CDN-M1(111651)	FCC	2020-08-28	12
	100 ohms resistance	CR100A (369)	LUTHI	2021-01-26	12
	6dB Attenuator	75-A-FFN-06 (1180092)	Bird	2020-08-29	12
	Coupling decoupling network	CDN ST08AS (51382)	Teseq	2021-01-26	12
Voltage Dips, Short Interruptions, and Voltage Variations of DC Power Ports(PCR9000LE)	Programmable power	PCR9000LE	KIKUSUI	2020-07-07	12

Software Information			
Test Item	Software Name	Manufacturer	Version
Radiated Emission	EMC32	R&S	V8.53.0
Radiated emission	EP5	TOYO	V5.5
Conducted Emission	EMC32	R&S	V8.53.0
Immunity to Radiated Electric Fields	emcware	AR	V3.1.0
Immunity to Continuous Conducted Interference	EMC32	R&S	V8.51.0
Voltage Dips, Short Interruptions, and Voltage Variations of DC Power Ports(PCR9000LE)	Quick Immunity Sequencer 2	KIKUSUI	V3.3.7.00

9 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

Table 27 System measurement uncertainty

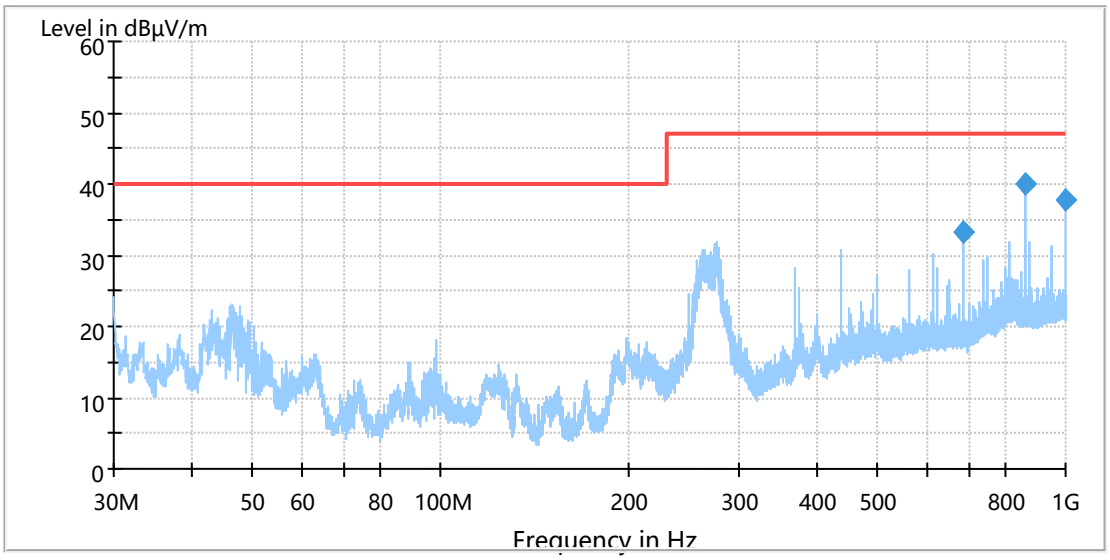
Items		Extended Uncertainty
Radiated emission (3m chamber)	Field strength (dBμV/m)	U=5.6dB; k=2 (30MHz-1GHz)
		U=5.6dB; k=2 (1GHz-6GHz)
Radiated emission (10m chamber)	Field strength (dBμV/m)	U=5.6dB; k=2 (30MHz-1GHz)
Conducted emission 2#	Disturbance voltage (dBμV)	U=2.2dB, k=2 (AMN) U=2.1 dB; k=2 (Current Probe)

10 Graph and Data of Emission Test

10.1 Radiated Emission

10.1.1 Radiated Emission of TC1 and TC2

30MHz-1GHz:

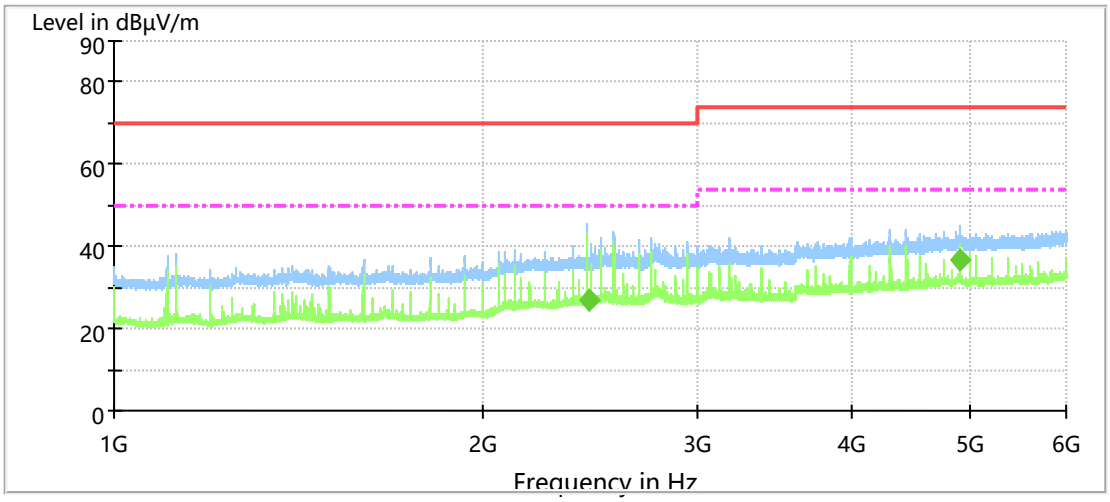


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
687.479500	33.1	-14.9	47.0	13.9	100.0	64.0	HORIZONTAL
860.153000	39.9	-11.7	47.0	7.1	100.0	10.0	HORIZONTAL
1000.000000	37.7	-9.9	47.0	9.3	100.0	295.0	HORIZONTAL

Note:
1. Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
2.The configuration TC1 and TC2 were tested, and the worse test result is supplied.

1GHz-6GHz



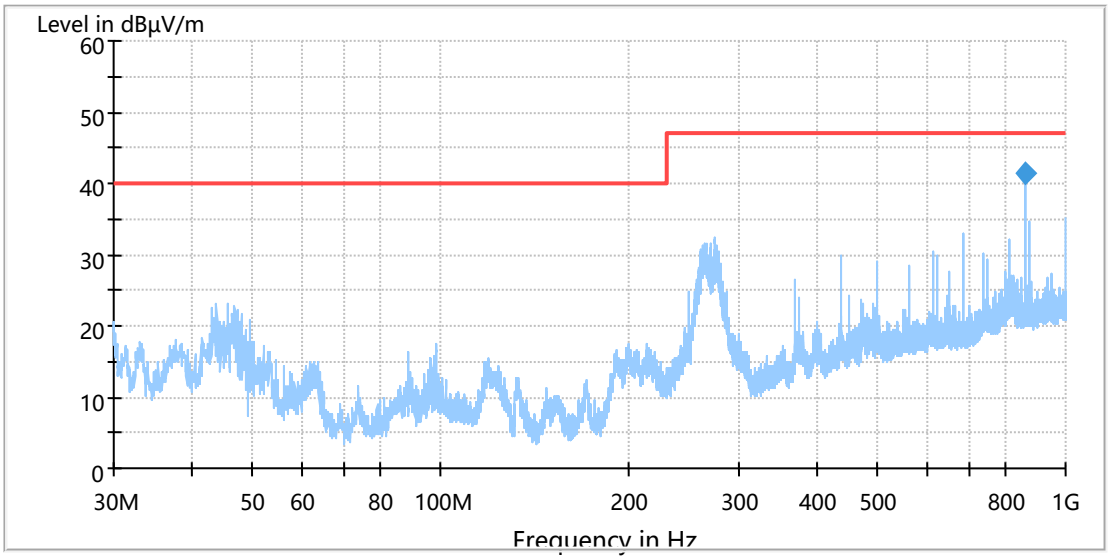
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2446.912500	26.8	-7.5	50.0	23.2	168.0	5.0	VERTICAL
4915.390667	36.5	-1.7	54.0	17.5	139.0	5.0	VERTICAL

Note:
1. Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configuration TC1 and TC2 were tested, and the worse test result is supplied.

10.1.2 Radiated Emission of TC3 and TC4

30MHz-1GHz:

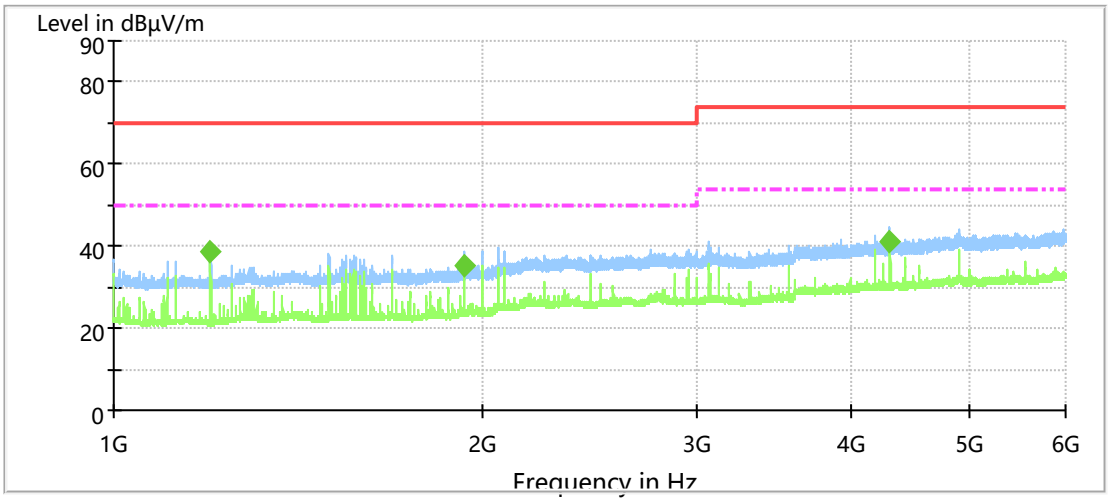


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
860.153000	41.4	-11.7	47.0	5.6	100.0	303.0	VERTICAL

Note:
1. Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configuration TC3 and TC4 were tested, and the worse test result is supplied.

1GHz-6GHz



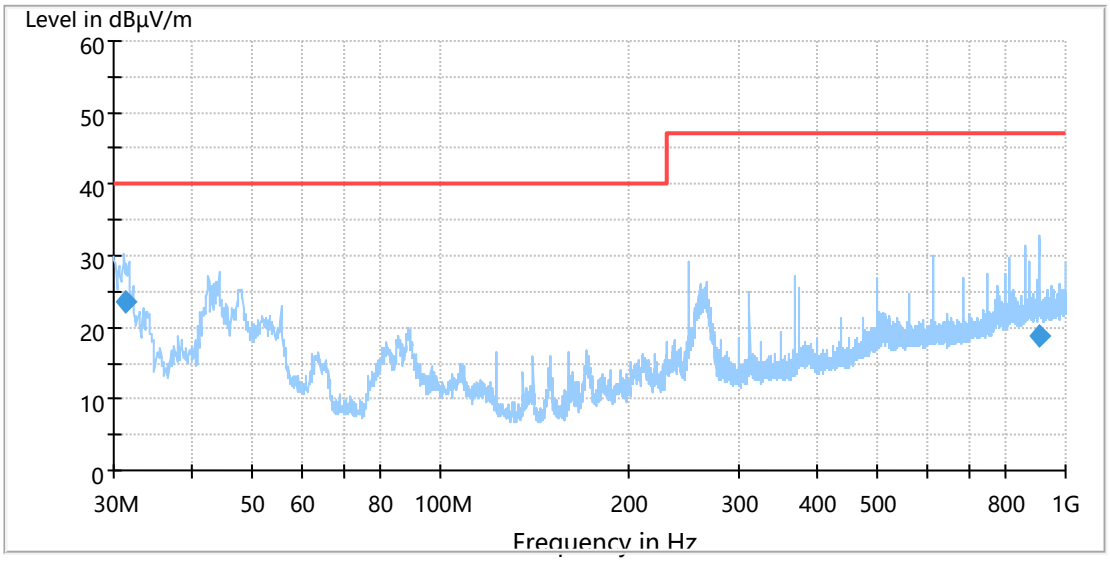
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1200.000000	38.7	-12.5	50.0	11.3	110.0	238.0	HORIZONTAL
1937.412500	35.1	-10.1	50.0	14.9	100.0	58.0	VERTICAL
4312.605667	40.9	-3.5	54.0	13.1	100.0	353.0	VERTICAL

Note:
1. Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configuration TC3 and TC4 were tested, and the worse test result is supplied.

10.1.3 Radiated Emission of TC5 and TC6

30MHz-1GHz:

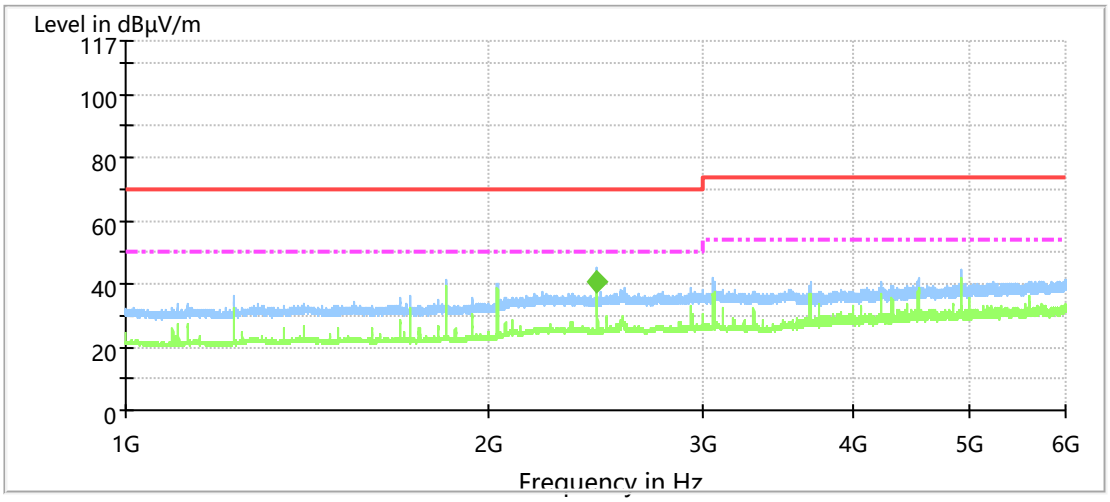


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
31.319820	23.7	-26.7	40.0	16.3	100.0	260.0	VERTICAL
909.433500	18.9	-11.3	47.0	28.1	107.0	293.0	HORIZONTAL

Note:
1. Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configuration TC5 and TC6 were tested, and the worse test result is supplied.

1GHz-6GHz



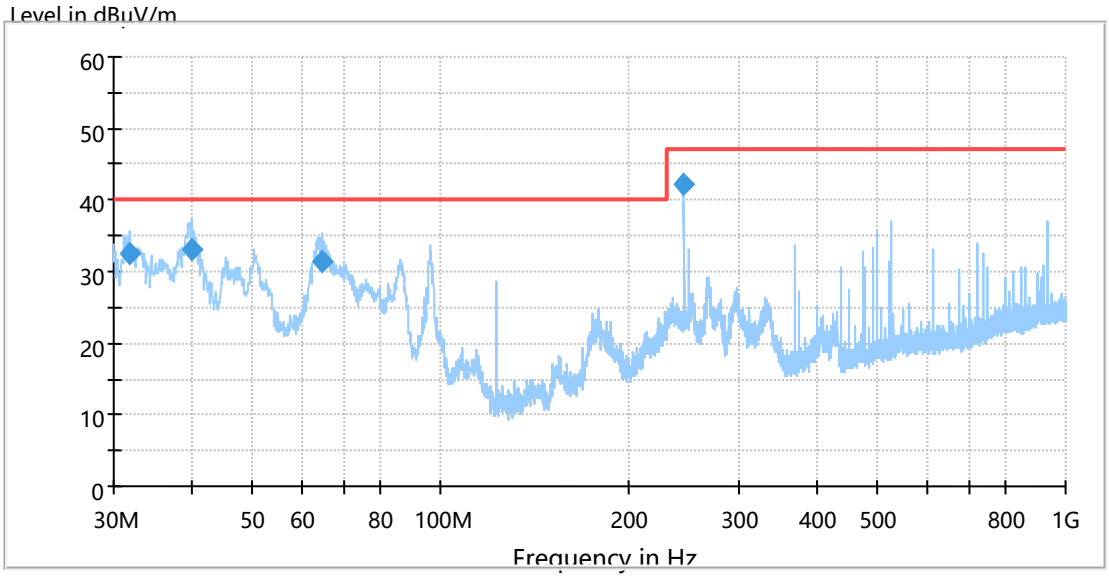
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2457.778167	40.8	-7.5	50.0	9.2	100.0	276.0	VERTICAL

Note:
1. Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configuration TC5 and TC6 were tested, and the worse test result is supplied.

10.1.4 Radiated Emission of TC7

30MHz-1GHz:

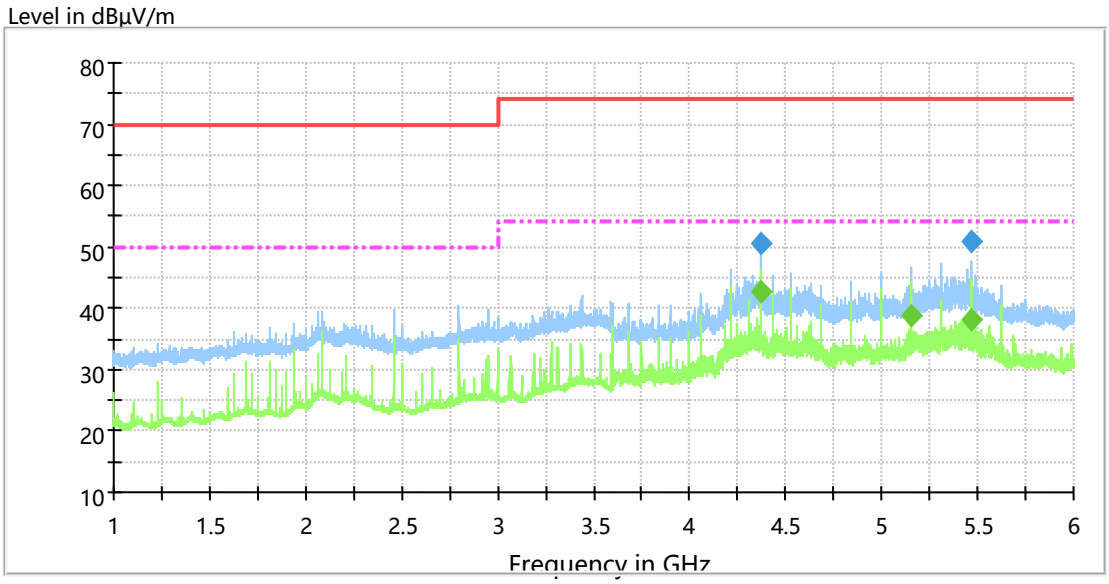


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
31.863785	32.6	-25.7	40.0	7.4	100.0	290.0	VERTICAL
40.091045	33.0	-24.4	40.0	7.0	100.0	-1.0	VERTICAL
64.822370	31.3	-26.9	40.0	8.7	100.0	338.0	VERTICAL
245.759500	42.0	-24.0	47.0	5.0	107.0	274.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
4375.191167	50.5	-2.9	74.0	23.5	100.0	193.0	VERTICAL
5468.589833	50.9	-0.2	74.0	23.1	200.0	229.0	HORIZONTAL

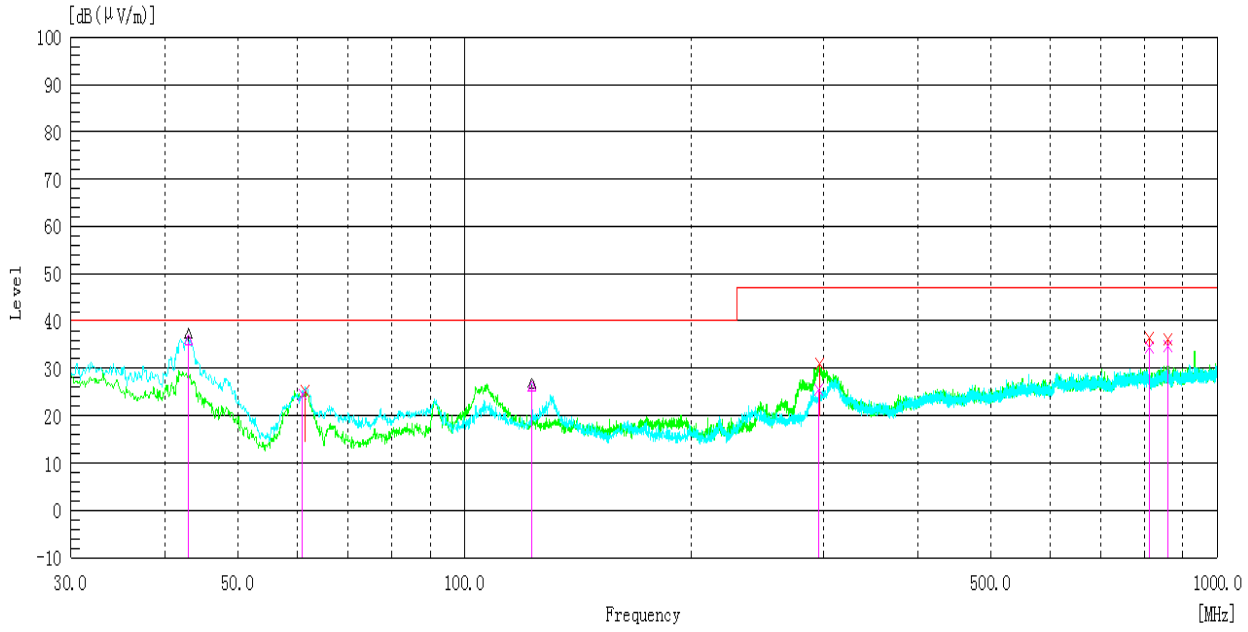
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
4375.191167	42.6	-2.9	54.0	11.4	100.0	195.0	VERTICAL
5156.317500	38.9	-1.0	54.0	15.1	190.0	254.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.5 Radiated Emission of TC8-TC9

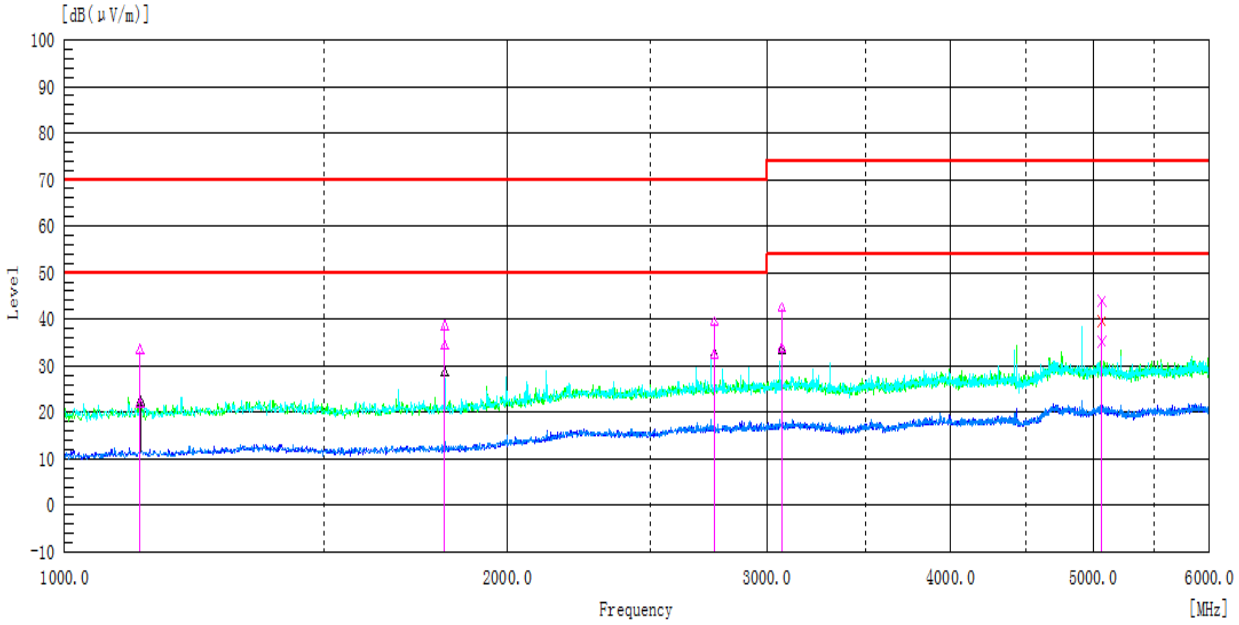
30MHz-1GHz:



No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	42.971	V	56.6	-20.8	35.8	40.0	4.2	102.0	238.0
2	60.963	H	51.0	-26.5	24.5	40.0	15.5	292.0	1.0
3	122.887	V	45.7	-19.7	26.0	40.0	14.0	100.0	257.0
4	295.561	H	43.0	-17.5	25.5	47.0	21.5	102.0	277.0
5	812.497	H	43.9	-9.6	34.3	47.0	12.7	100.0	142.0
6	860.155	H	43.4	-8.7	34.7	47.0	12.3	100.0	55.0

Note:
1. Margin=Limit-Result
Result=Reading level by receiver + c.f (Antenna factor + cable loss – preamplifier gain)
2. The TC8-TC9 were tested, and the worse test result was supplied.

1GHz-6GHz

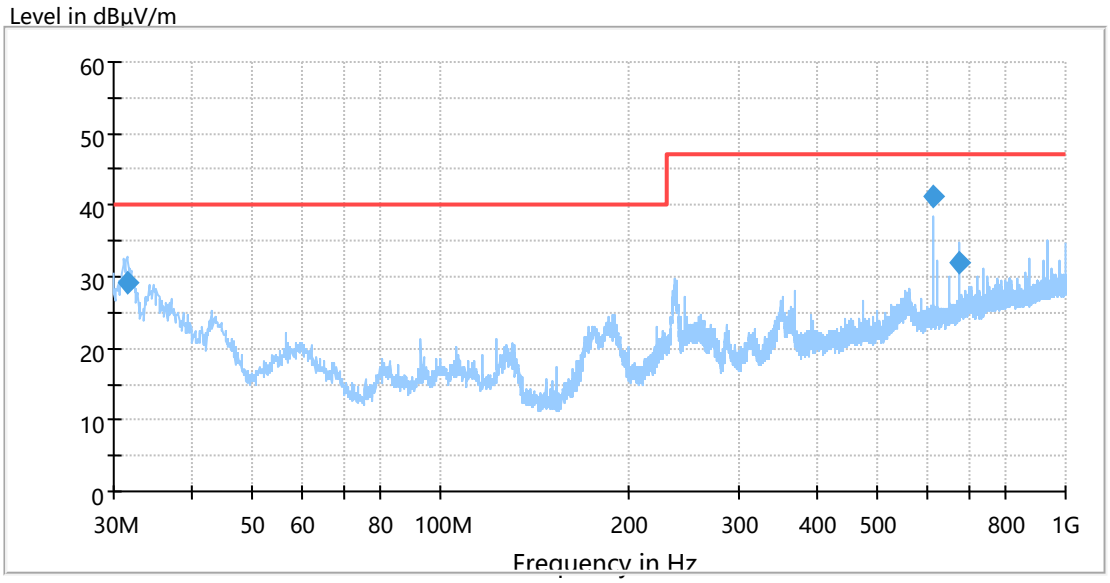


No.	Frequency	(P)	Reading PK	Reading AV	c.f	Result PK	Result AV	Limit PK	Limit AV	Margin PK	Margin AV	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[°]
1	1124.830	V	46.5	34.9	-13.2	33.3	21.7	70.0	50.0	36.7	28.3	102.0	159.0
2	1812.596	V	50.0	45.8	-11.6	38.4	34.2	70.0	50.0	31.6	15.8	102.0	208.0
3	2764.801	V	47.2	40.1	-7.9	39.3	32.2	70.0	50.0	30.7	17.8	129.0	12.0
4	3072.145	V	49.6	41.1	-7.3	42.3	33.8	74.0	54.0	31.7	20.2	201.0	209.0
5	5068.902	H	47.3	38.6	-3.3	44.0	35.3	74.0	54.0	30.0	18.7	195.0	354.0

Note:
1. Margin=Limit-Result
Result=Reading level by receiver + c.f (Antenna factor + cable loss – preamplifier gain)
2. The TC8-TC9 were tested, and the worse test result was supplied.

10.1.6 Radiated Emission of TC10

30MHz-1GHz:

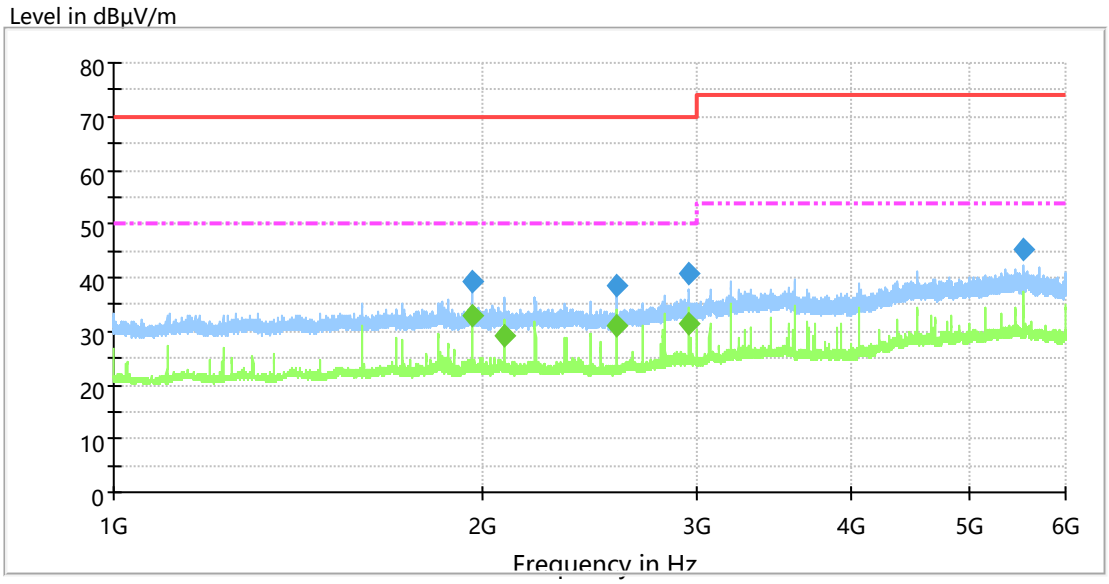


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
31.634240	29.1	-25.7	40.0	10.9	100.0	155.0	VERTICAL
614.413000	41.1	-15.2	47.0	5.9	130.0	120.0	HORIZONTAL
674.975000	31.8	-14.6	47.0	15.2	142.0	134.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1966.170000	39.4	-9.5	70.0	30.6	100.0	178.0	VERTICAL
2580.631833	38.4	-8.6	70.0	31.6	105.0	182.0	VERTICAL
2949.055000	40.9	-7.1	70.0	29.1	150.0	165.0	HORIZONTAL
5550.015667	45.1	-0.2	74.0	28.9	196.0	218.0	HORIZONTAL

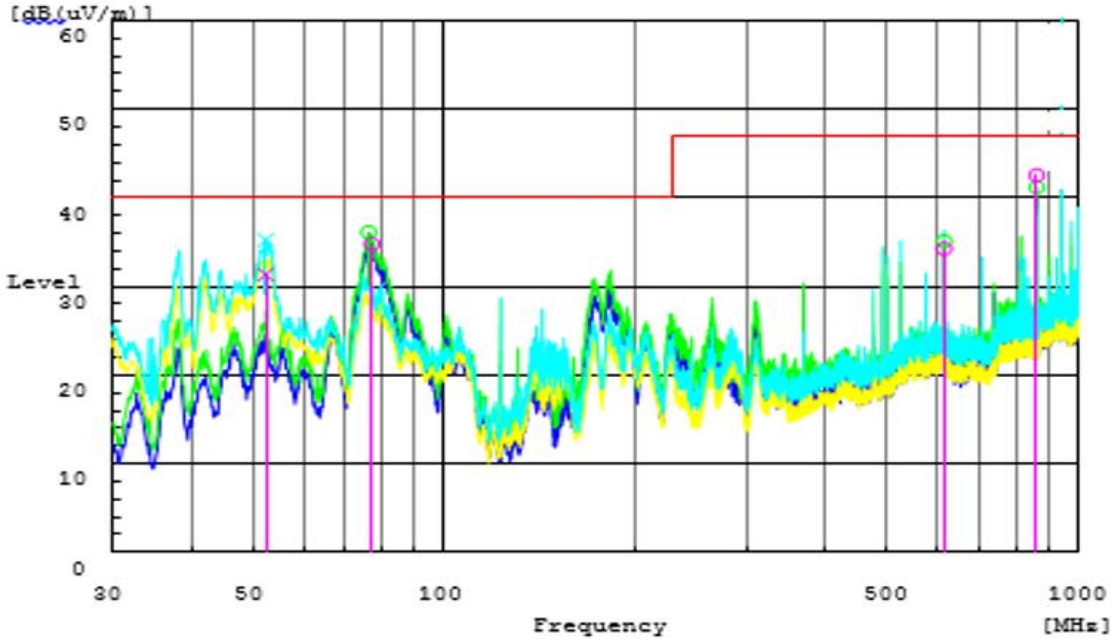
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1966.170000	32.8	-9.5	50.0	17.2	100.0	178.0	VERTICAL
2088.955000	29.0	-9.4	50.0	21.0	100.0	215.0	VERTICAL
2580.397500	31.0	-8.6	50.0	19.0	100.0	178.0	VERTICAL
2949.055000	31.5	-7.1	50.0	18.5	200.0	194.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.7 Radiated Emission of TC11~TC15

30MHz-1GHz:

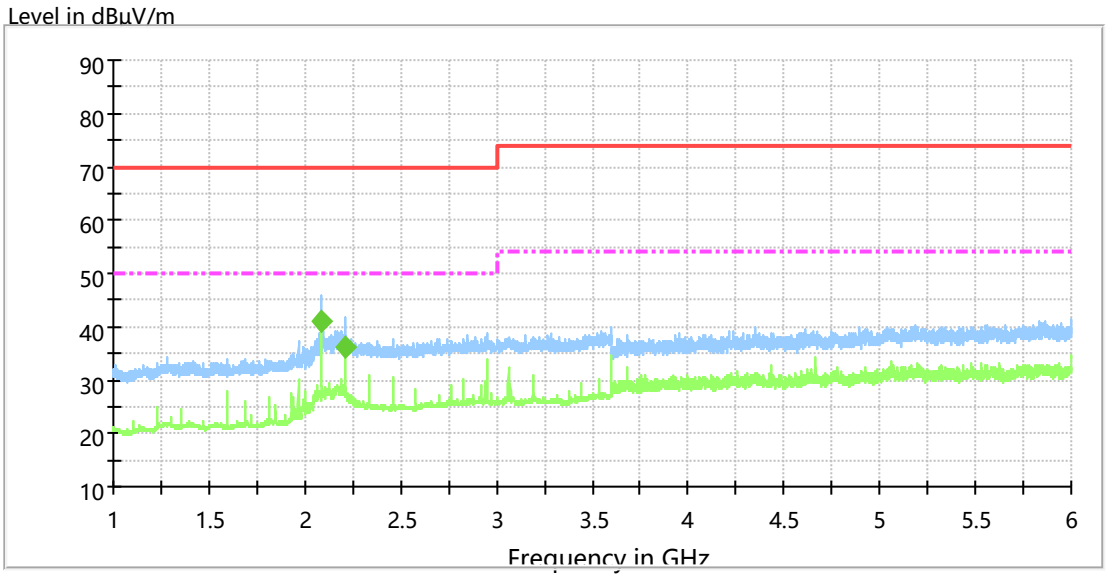


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
52.368	31.3	-23.5	40.0	8.7	100.0	235.0	V
76.998	34.8	-28.7	40.0	5.2	250.0	184.0	H
614.398	34.3	-13.8	47.0	12.7	206.0	190.0	H
860.165	42.6	-11.1	47.0	4.4	100.0	302.0	H

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
The TC11-TC15 were tested, and the worst test result was supplied.

1GHz-6GHz



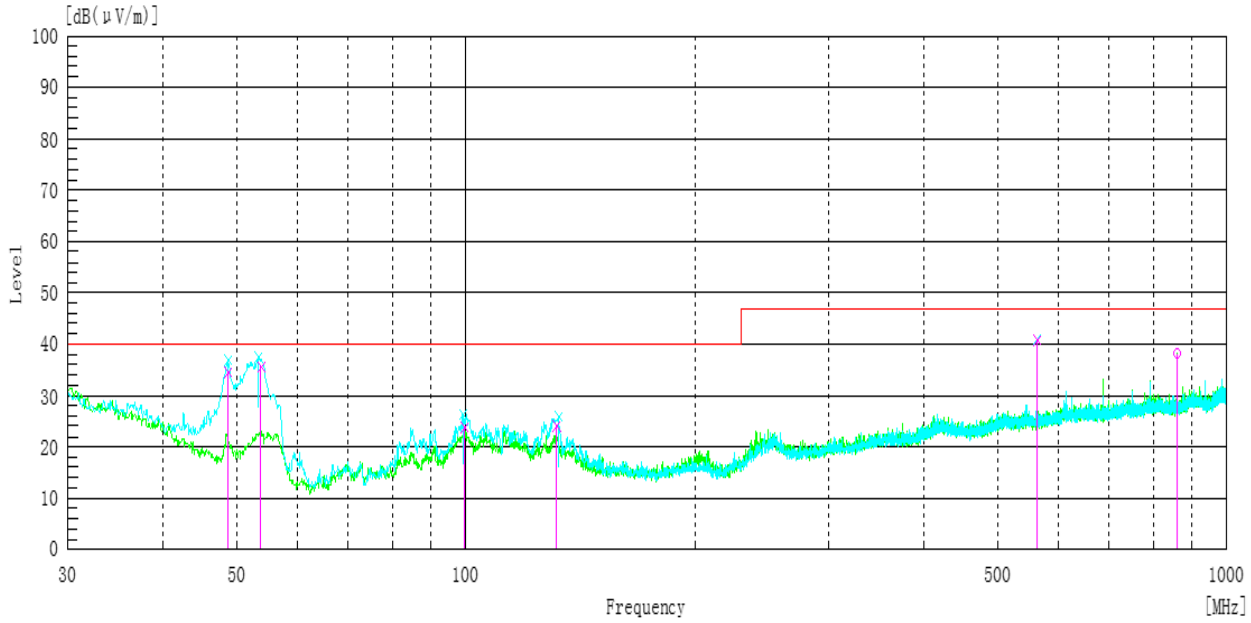
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2088.923667	41.0	-7.9	50.0	9.0	100.0	70.0	HORIZONTAL
2211.675833	36.3	-6.5	50.0	13.7	100.0	69.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
The TC11-TC15 were tested, and the worst test result was supplied.

10.1.8 Radiated Emission of TC16-TC17

30MHz-1GHz:

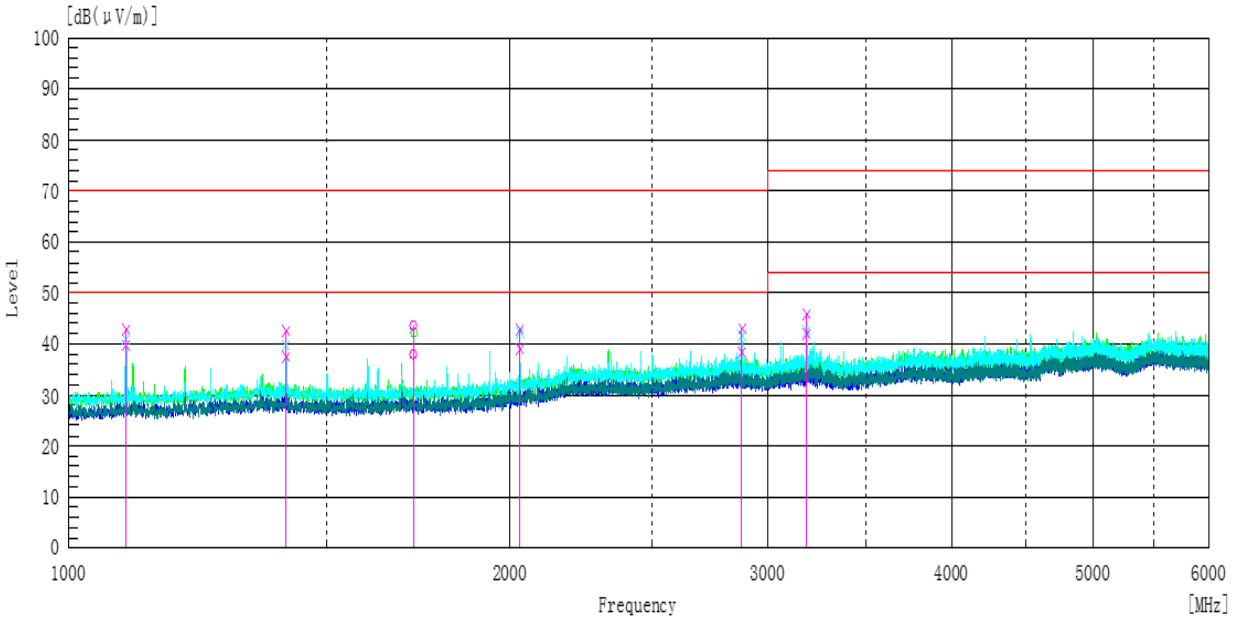


No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [°]
1	48.722	V	58.6	-24.0	34.6	40.0	5.4	100.0	358.0
2	53.808	V	61.4	-25.7	35.7	40.0	4.3	111.0	357.0
3	99.382	V	44.8	-21.0	23.8	40.0	16.2	102.0	108.0
4	131.451	V	43.4	-19.4	24.0	40.0	16.0	100.0	137.0
5	562.506	V	52.3	-11.5	40.8	47.0	6.2	100.0	260.0
6	860.160	H	47.2	-9.0	38.2	47.0	8.8	100.0	323.0

Notes:

1. Margin=Limit-Result
   Result=Reading level by receiver + c.f (Antenna factor + cable loss – preamplifier gain)
2. The TC16-TC17 were tested, and the worse test result was supplied.

1GHz-6GHz



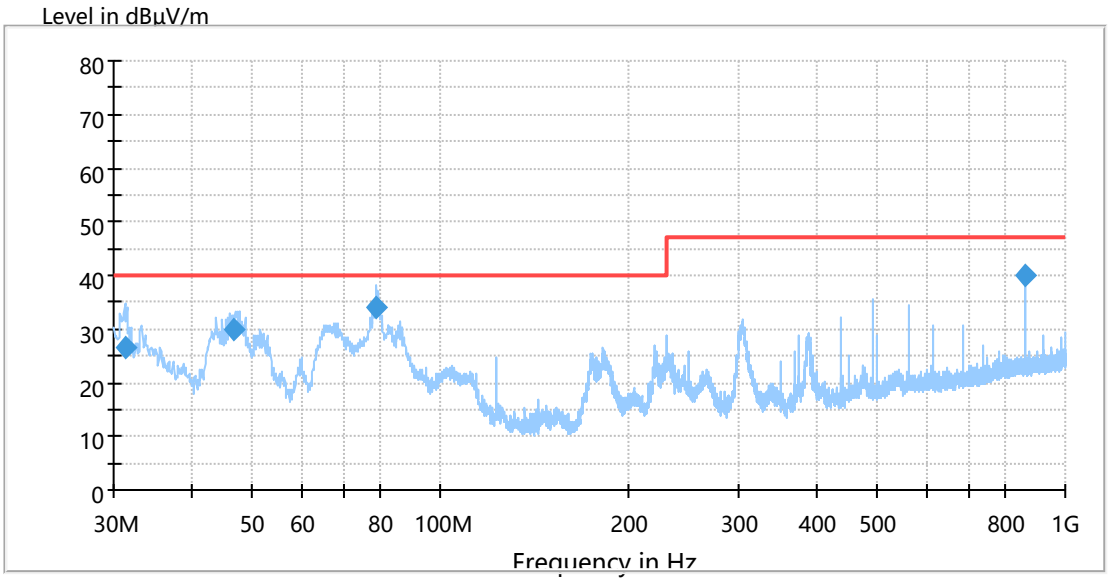
No.	Frequency	(P)	Reading PK	Reading CAV	c.f	Result PK	Result CAV	Limit PK	Limit AV	Margin PK	Margin CAV	Height	Angle
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[°]
1	1093.702	V	56.3	53.3	-13.4	42.9	39.9	70.0	50.0	27.1	10.1	208.0	47.0
2	1406.282	V	54.6	49.5	-12.0	42.6	37.5	70.0	50.0	27.4	12.5	101.0	224.0
3	1718.650	H	55.5	49.9	-12.0	43.5	37.9	70.0	50.0	26.5	12.1	101.0	268.0
4	2031.313	V	53.3	49.5	-10.4	42.9	39.1	70.0	50.0	27.1	10.9	127.0	244.0
5	2879.720	V	50.9	45.9	-7.6	43.3	38.3	70.0	50.0	26.7	11.7	100.0	175.0
6	3187.431	V	53.0	49.0	-7.0	46.0	42.0	74.0	54.0	28.0	12.0	123.0	122.0

Notes:

1. Margin=Limit-Result
   Result=Reading level by receiver + c.f (Antenna factor + cable loss – preamplifier gain)
2. The TC16-TC17 were tested, and the worse test result was supplied.

10.1.9 Radiated Emission of TC18

30MHz-1GHz:

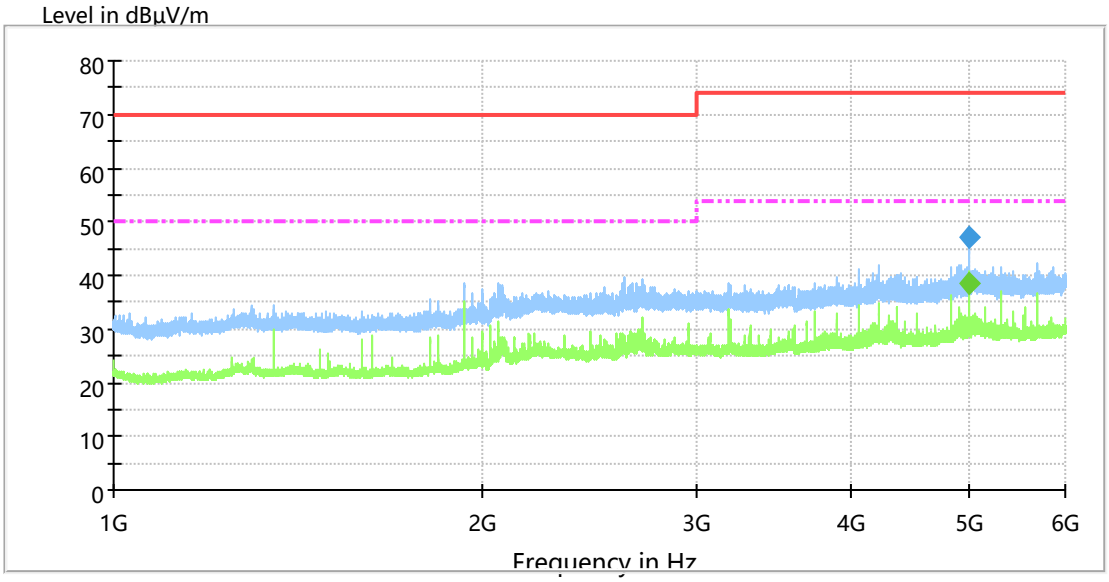


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
31.417305	26.7	-25.7	40.0	13.3	100.0	120.0	VERTICAL
46.800125	30.1	-24.4	40.0	9.9	100.0	160.0	VERTICAL
79.117045	34.1	-29.2	40.0	5.9	100.0	210.0	VERTICAL
860.182000	40.0	-11.6	47.0	7.0	100.0	40.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
4999.965667	47.2	-0.5	74.0	26.8	100.0	195.0	VERTICAL

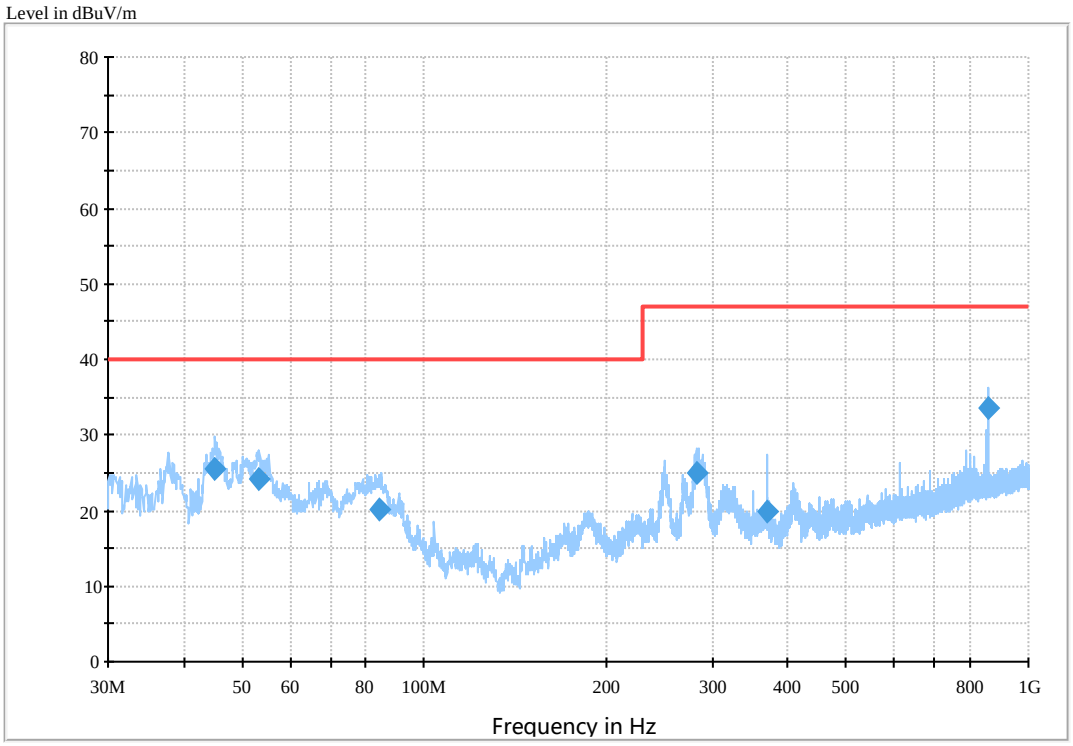
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
4999.800000	38.6	-0.5	54.0	15.4	100.0	198.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.10 Radiated Emission of TC19

30MHz-1GHz:

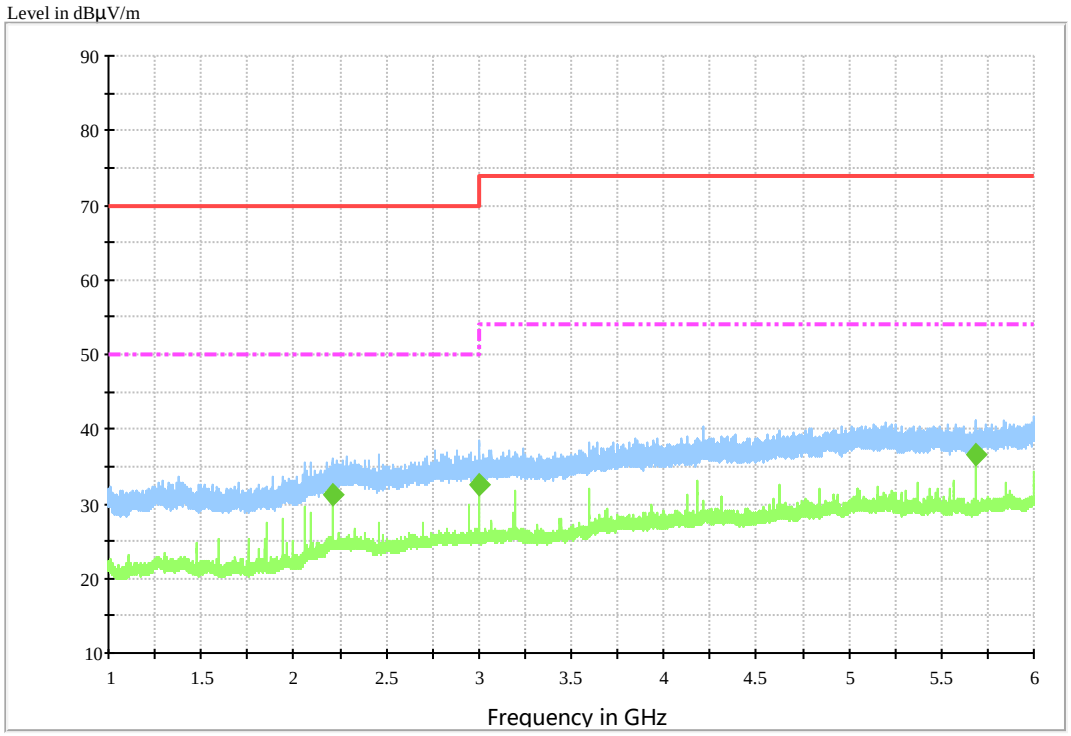


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
44.966340	25.6	-24.3	40.0	14.4	105.0	0.0	VERTICAL
53.133600	24.1	-24.7	40.0	15.9	170.0	0.0	VERTICAL
84.631430	20.1	-27.4	40.0	19.9	200.0	0.0	HORIZONTAL
283.348000	25.0	-23.1	47.0	22.0	120.0	0.0	HORIZONTAL
368.644000	19.8	-20.8	47.0	27.2	100.0	0.0	HORIZONTAL
860.182000	33.7	-11.6	47.0	13.3	100.0	0.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



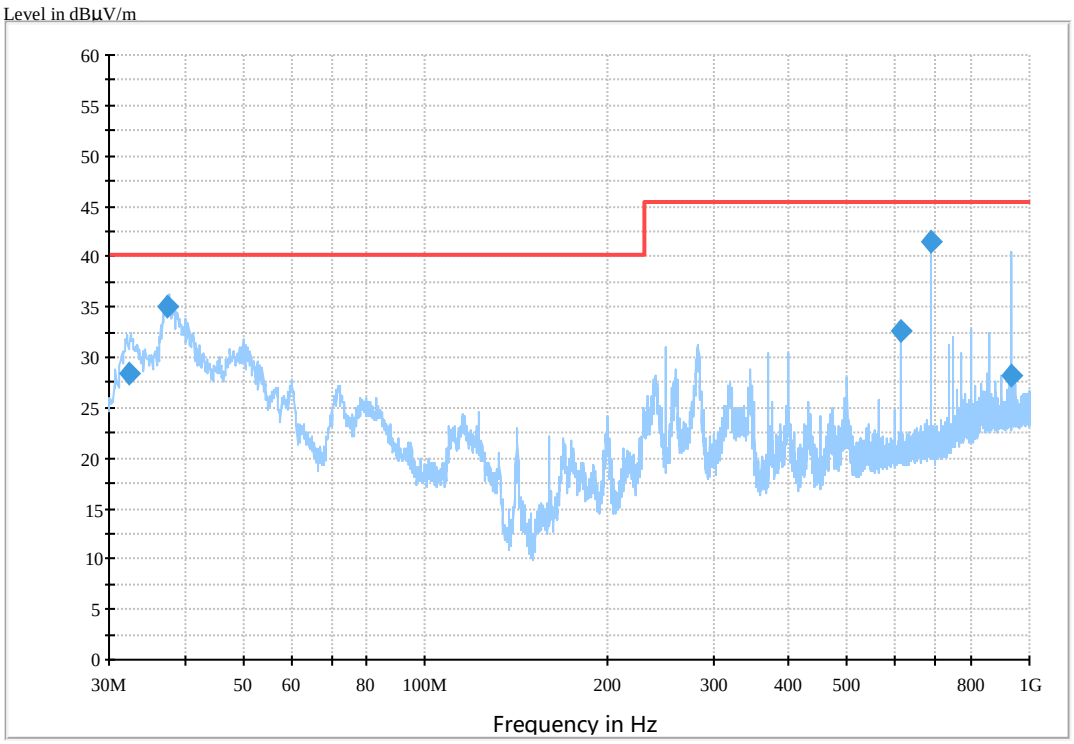
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2211.974333	31.3	-6.5	50.0	18.7	100.0	322.0	HORIZONTAL
3000.034333	32.7	-5.2	54.0	21.3	100.0	7.0	VERTICAL
5687.462500	36.5	0.6	54.0	17.5	100.0	10.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.11 Radiated Emission of TC20

30MHz-1GHz:

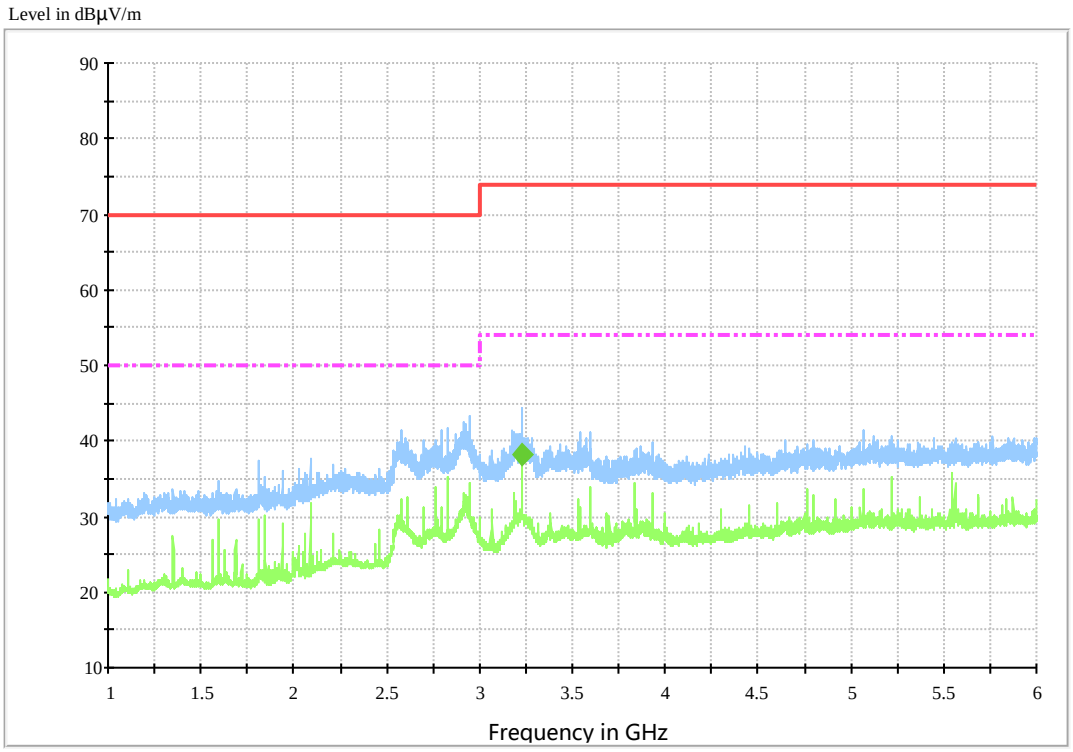


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.294670	28.4	-25.6	40.0	11.6	100.0	331.0	VERTICAL
37.571200	35.1	-24.9	40.0	4.9	100.0	167.0	VERTICAL
614.413000	32.7	-15.0	47.0	14.3	100.0	217.0	VERTICAL
687.485000	41.6	-14.3	47.0	5.4	100.0	161.0	VERTICAL
933.314000	28.2	-10.3	47.0	18.8	100.0	171.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



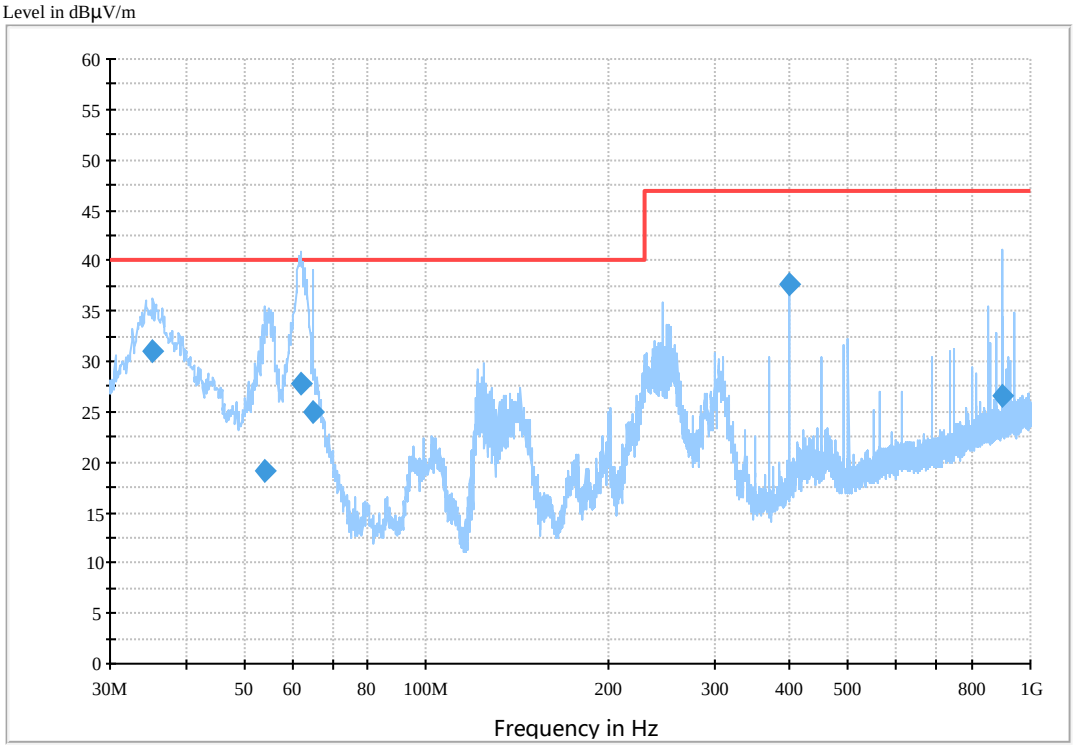
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3225.573500	38.1	-3.8	54.0	15.9	100.0	10.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.12 Radiated Emission of TC21

30MHz-1GHz:

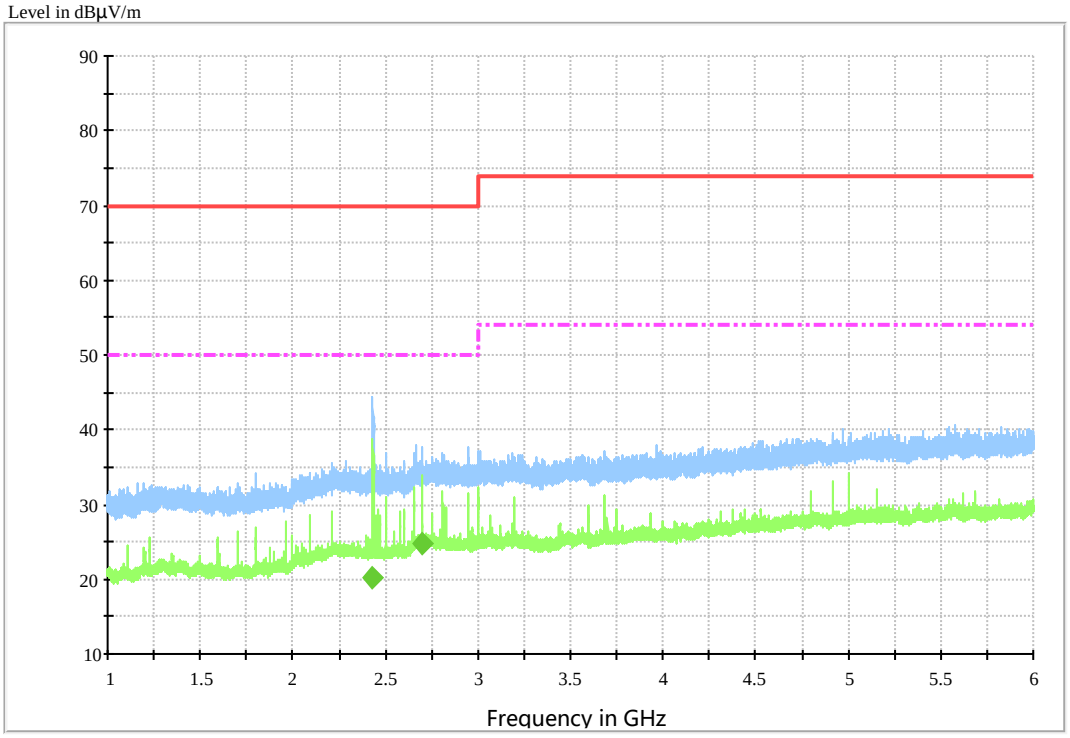


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
35.158325	31.1	-25.5	40.0	8.9	100.0	61.0	VERTICAL
54.242235	19.2	-24.7	40.0	20.8	150.0	42.0	VERTICAL
62.096465	27.7	-25.7	40.0	12.3	100.0	176.0	VERTICAL
64.848430	25.0	-26.8	40.0	15.0	100.0	341.0	VERTICAL
399.998000	37.7	-19.7	47.0	9.3	100.0	357.0	VERTICAL
896.810500	26.6	-10.8	47.0	20.4	100.0	139.0	VERTICAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



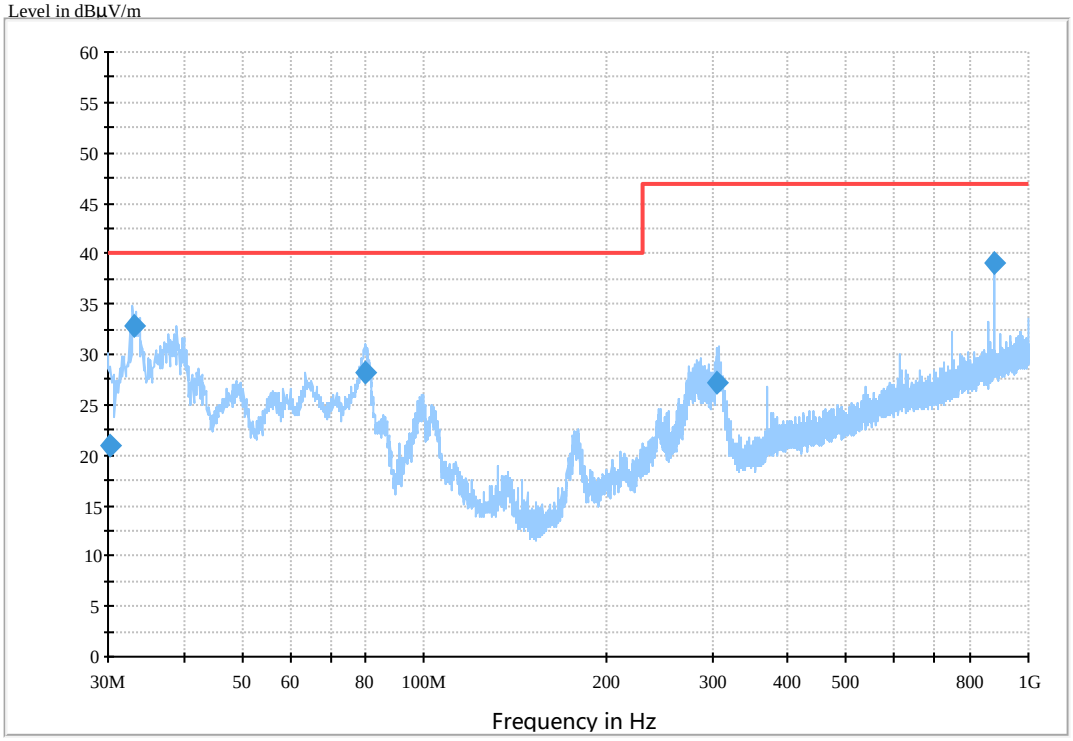
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2425.898167	20.2	-6.0	50.0	29.8	100.0	323.0	VERTICAL
2703.182500	24.6	-5.0	50.0	25.4	200.0	314.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.13 Radiated Emission of TC22

30MHz-1GHz:

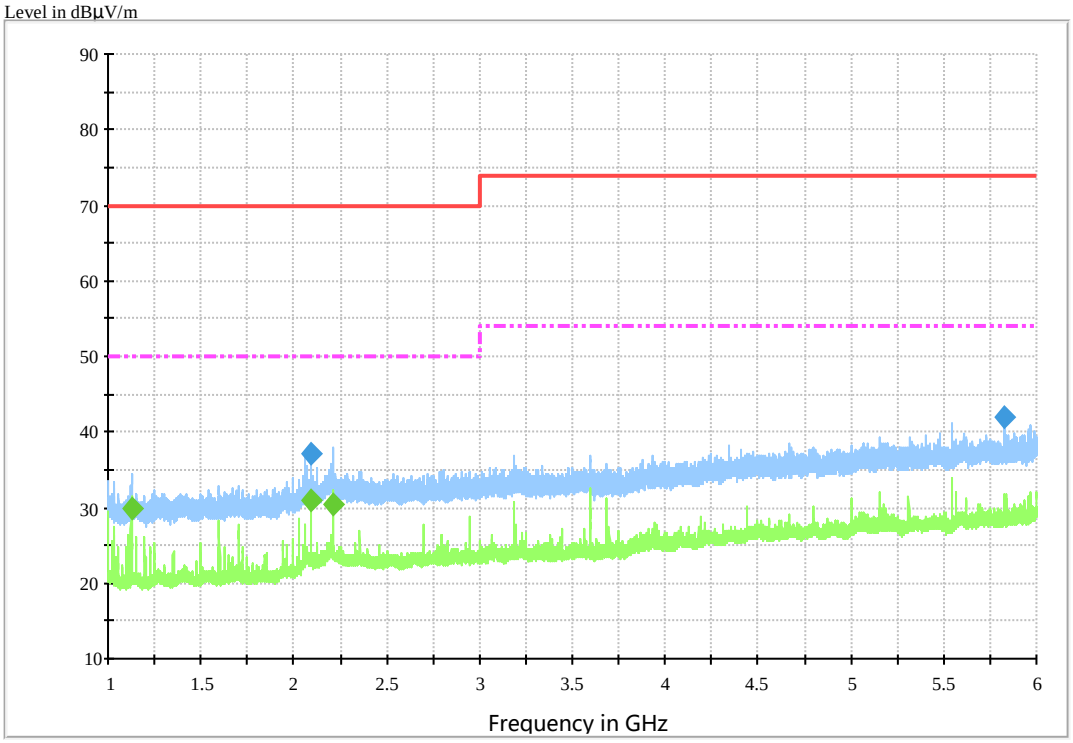


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.120000	21.0	-23.0	40.0	19.0	100.0	104.0	VERTICAL
33.081965	32.8	-22.1	40.0	7.2	100.0	264.0	VERTICAL
80.095225	28.3	-25.7	40.0	11.7	200.0	156.0	HORIZONTAL
306.298000	27.1	-17.6	47.0	19.9	100.0	171.0	HORIZONTAL
874.972000	39.0	-5.8	47.0	8.0	100.0	296.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2088.905000	37.2	-7.2	70.0	32.8	100.0	14.0	VERTICAL
5831.164167	41.9	2.9	74.0	32.1	114.0	15.0	HORIZONTAL

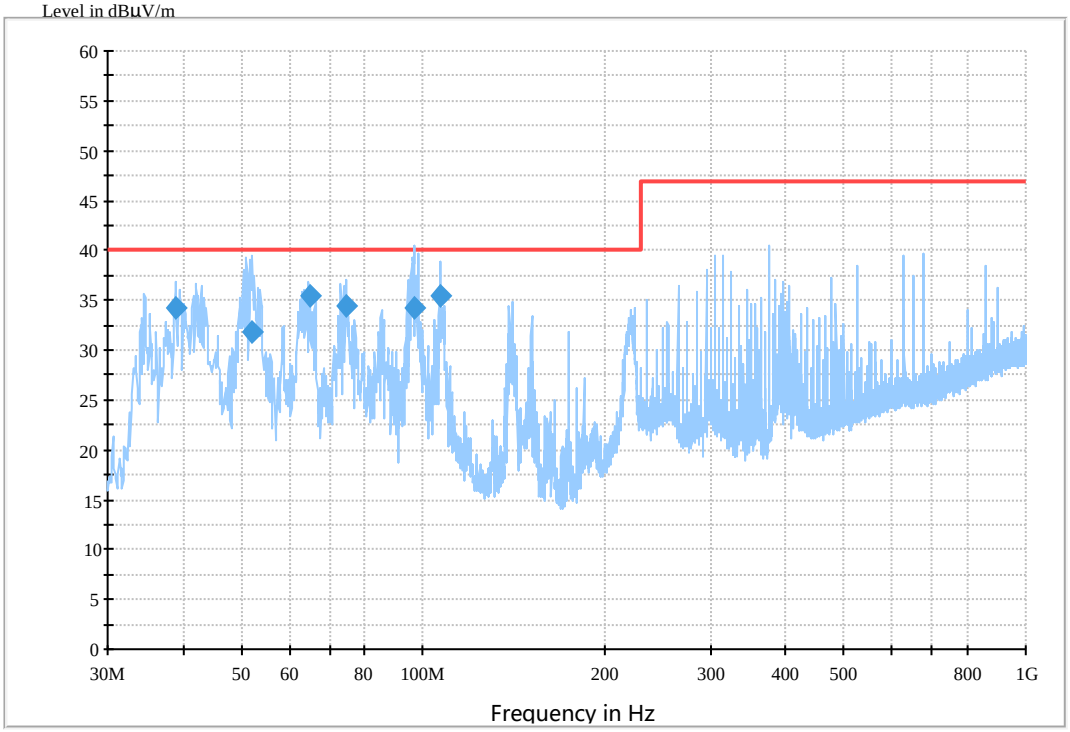
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1124.834333	29.8	-11.6	50.0	20.2	100.0	305.0	HORIZONTAL
2089.064167	31.0	-7.2	50.0	19.0	163.0	145.0	VERTICAL
2211.997500	30.5	-5.8	50.0	19.5	126.0	136.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.14 Radiated Emission of TC23

30MHz-1GHz:

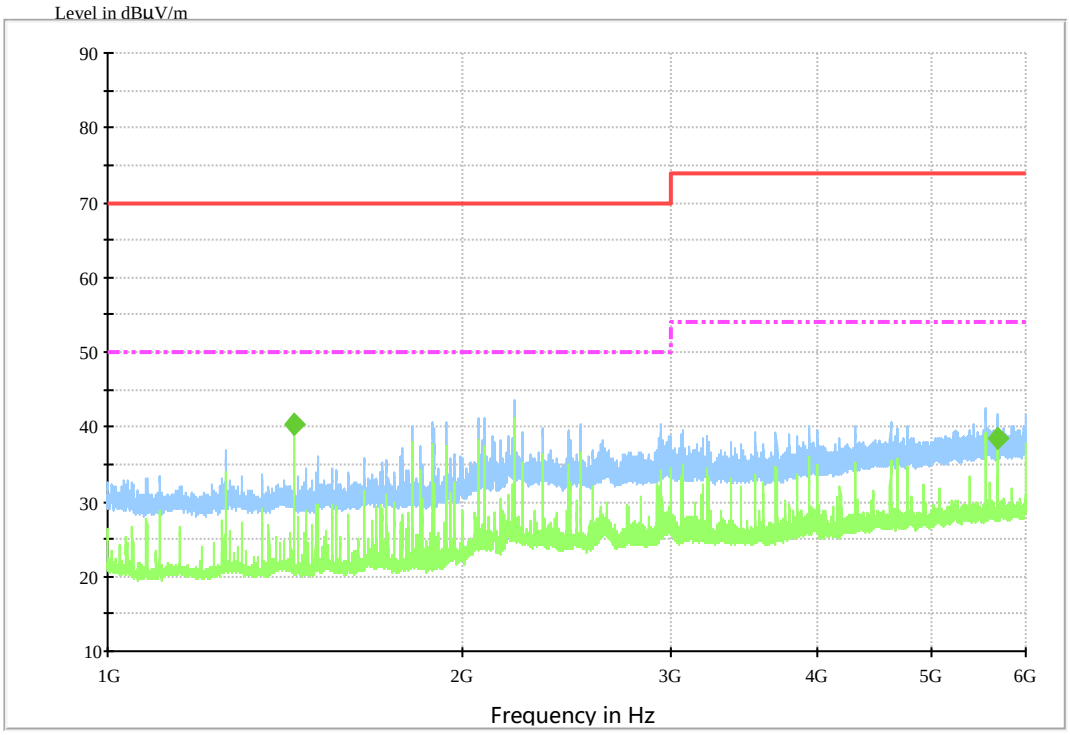


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
38.969380	34.2	-20.5	40.0	5.8	100.0	20.0	VERTICAL
51.951935	31.8	-19.1	40.0	8.2	126.0	-6.0	VERTICAL
64.762370	35.4	-21.4	40.0	4.6	100.0	87.0	VERTICAL
74.570385	34.4	-24.3	40.0	5.6	239.0	1.0	HORIZONTAL
96.695805	34.3	-21.3	40.0	5.7	214.0	206.0	HORIZONTAL
106.697000	35.5	-21.3	40.0	4.5	226.0	215.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



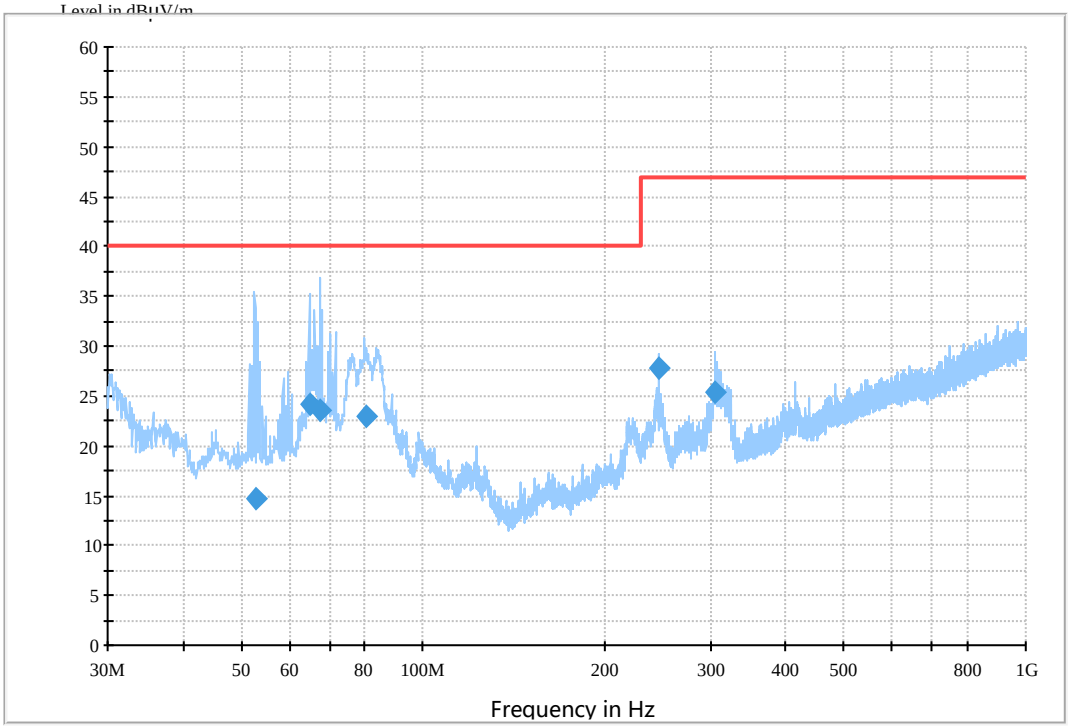
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1438.833833	40.4	-10.2	50.0	9.6	138.0	23.0	VERTICAL
5687.507000	38.5	2.5	54.0	15.5	100.0	183.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.15 Radiated Emission of TC24&TC28

30MHz-1GHz:

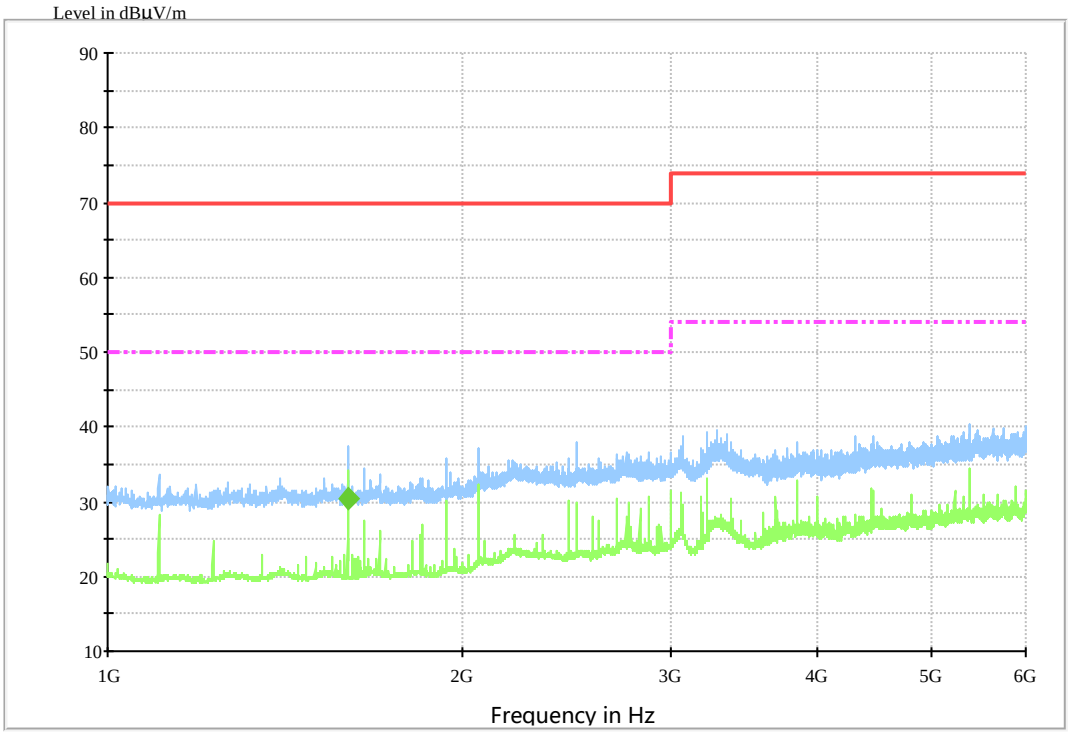


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
52.864005	14.6	-19.2	40.0	25.4	150.0	73.0	VERTICAL
64.918885	24.1	-21.4	40.0	15.9	100.0	267.0	VERTICAL
67.344790	23.6	-22.2	40.0	16.4	100.0	311.0	VERTICAL
80.275225	22.9	-25.7	40.0	17.1	139.0	20.0	VERTICAL
245.759500	27.8	-19.1	47.0	19.2	100.0	36.0	HORIZONTAL
305.969000	25.4	-17.6	47.0	21.6	100.0	290.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
Both TC24&TC28 were tested, and the worse test result was supplied.

1GHz-6GHz



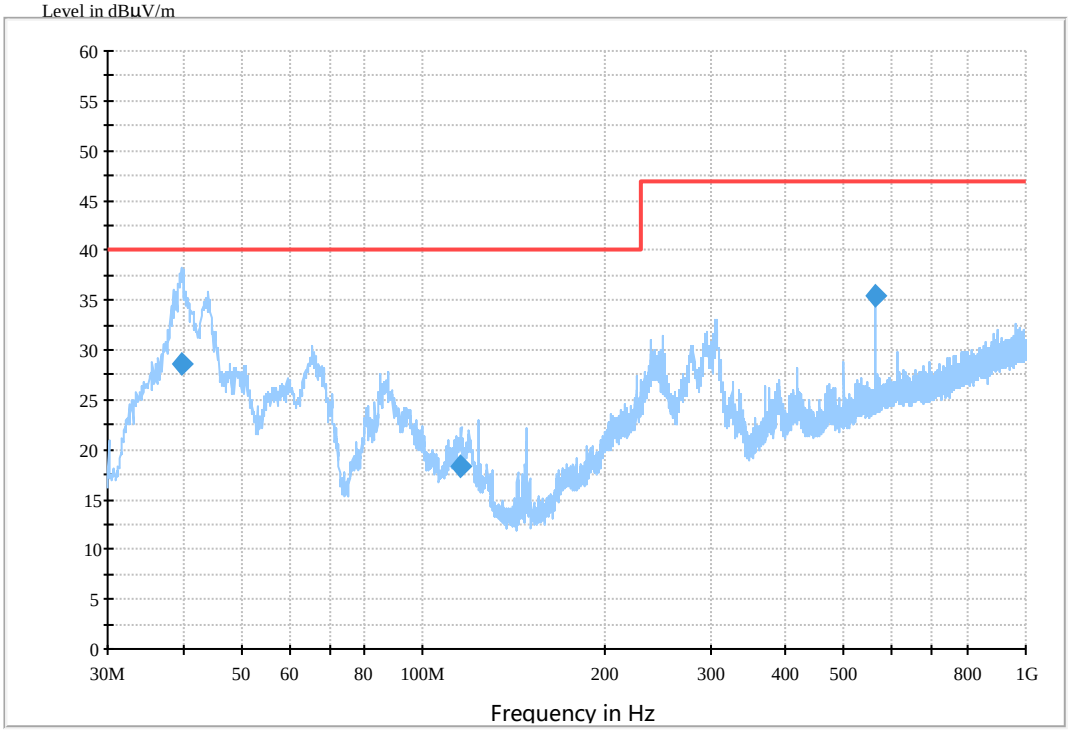
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1597.352667	30.4	-10.1	54.0	23.6	100.0	96.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
Both TC24&TC28 were tested, and the worse test result was supplied.

10.1.16 Radiated Emission of TC25&TC26

30MHz-1GHz:

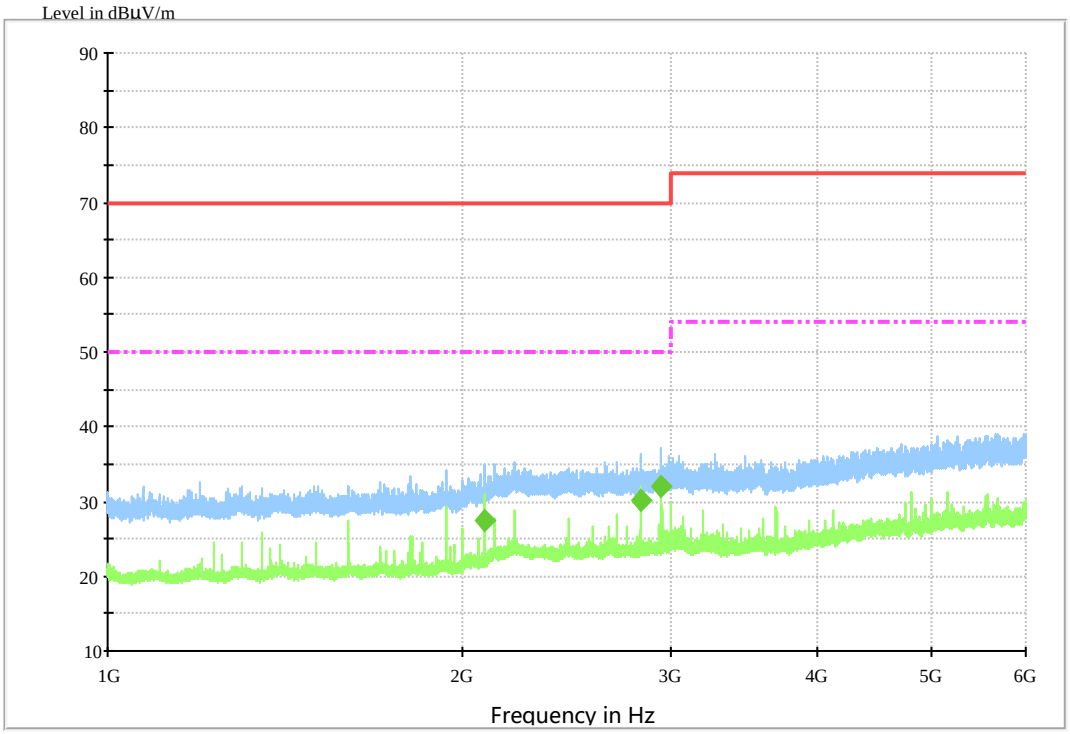


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
39.741500	28.5	-20.3	40.0	11.5	150.0	291.0	VERTICAL
115.730000	18.3	-22.4	40.0	21.7	126.0	355.0	VERTICAL
562.477500	35.4	-10.8	47.0	11.6	100.0	231.0	VERTICAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
Both TC25&TC26 were tested, and the worse test result was supplied.

1GHz-6GHz



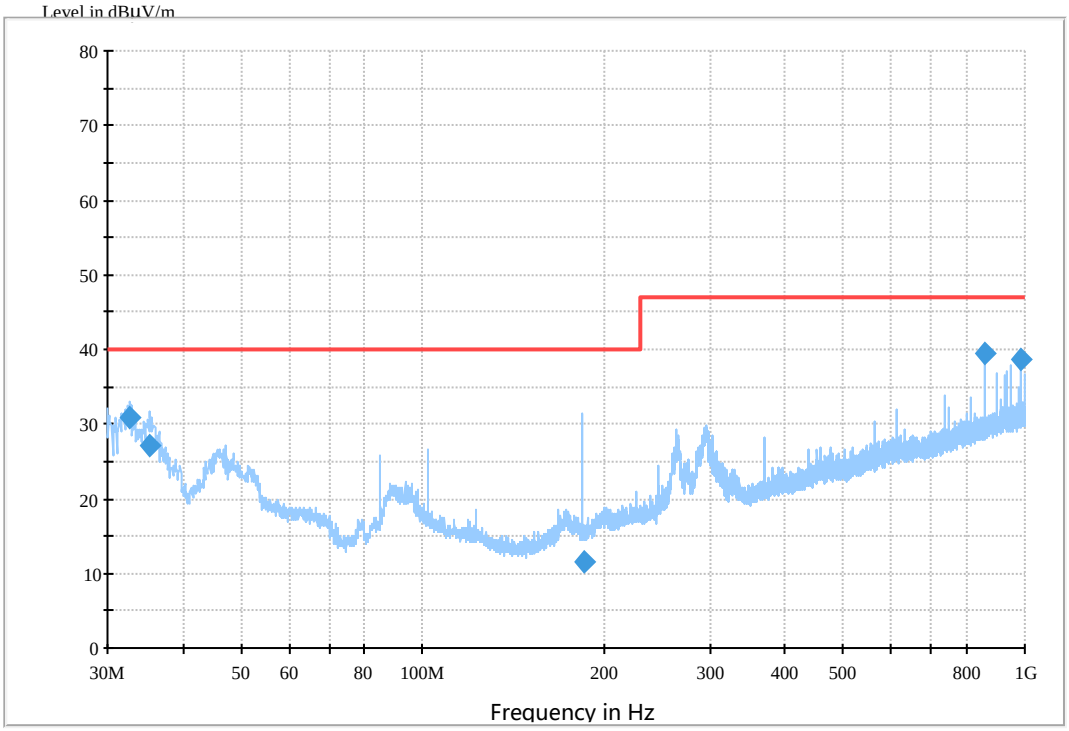
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2088.837333	27.4	-7.2	50.0	22.6	100.0	40.0	VERTICAL
2826.335333	30.2	-5.2	50.0	19.8	200.0	23.0	HORIZONTAL
2948.999500	32.1	-4.7	50.0	17.9	100.0	180.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.
Both TC25&TC26 were tested, and the worse test result was supplied.

10.1.17 Radiated Emission of TC27

30MHz-1GHz:

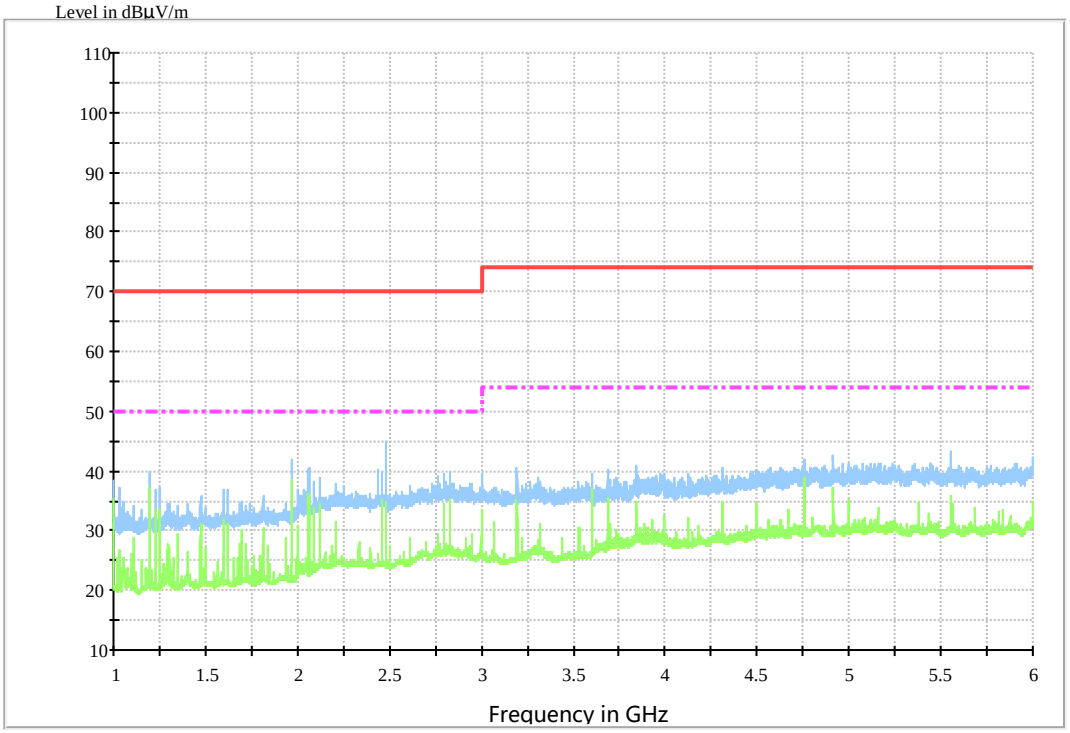


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.672420	30.7	-22.2	40.0	9.3	100.0	223.0	VERTICAL
35.301810	27.2	-21.4	40.0	12.8	100.0	-38.0	VERTICAL
185.038500	11.4	-21.7	40.0	28.6	163.0	320.0	HORIZONTAL
860.182000	39.4	-5.1	47.0	7.6	100.0	297.0	HORIZONTAL
983.066500	38.6	-3.5	47.0	8.4	100.0	305.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



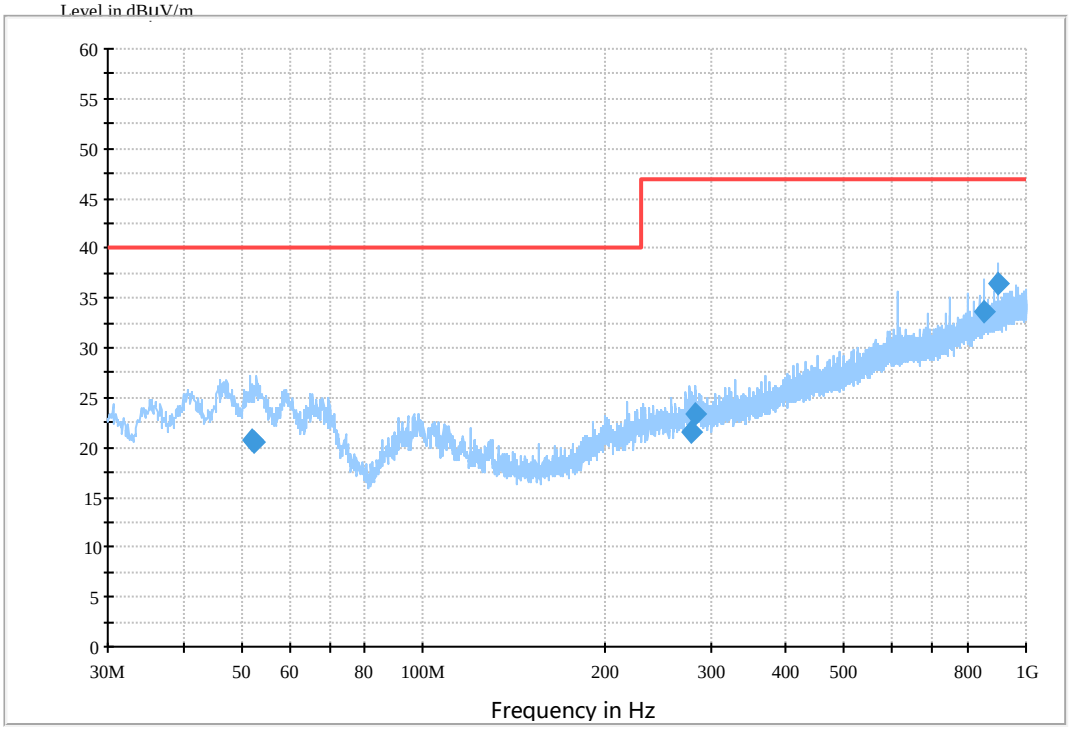
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1199.466667	37.16	-12.5	50.0	12.84	100.0	304.0	VERTICAL
1965.560000	38.62	-10.0	50.0	11.38	100.0	14.0	VERTICAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.18 Radiated Emission of TC29

30MHz-1GHz:

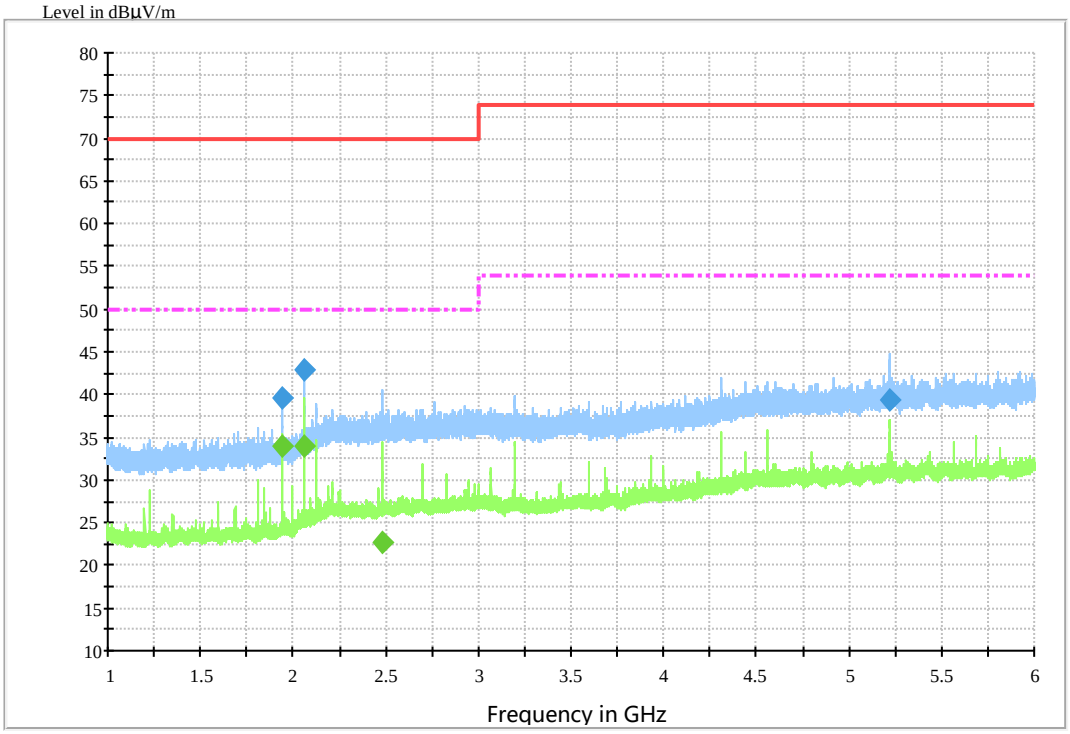


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
51.986640	20.7	-16.3	40.0	19.3	100.0	215.0	VERTICAL
52.627540	20.6	-16.3	40.0	19.4	190.0	111.0	VERTICAL
277.403000	21.5	-15.4	47.0	25.5	153.0	301.0	VERTICAL
282.487000	23.4	-15.2	47.0	23.6	109.0	268.0	VERTICAL
849.988000	33.7	-2.6	47.0	13.3	100.0	324.0	HORIZONTAL
899.969500	36.4	-1.6	47.0	10.6	100.0	25.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1937.400000	39.7	-5.2	70.0	30.3	109.0	-3.0	VERTICAL
2062.633333	42.9	-4.2	70.0	27.1	100.0	-3.0	VERTICAL
5219.333333	39.4	4.3	74.0	34.6	128.0	23.0	VERTICAL

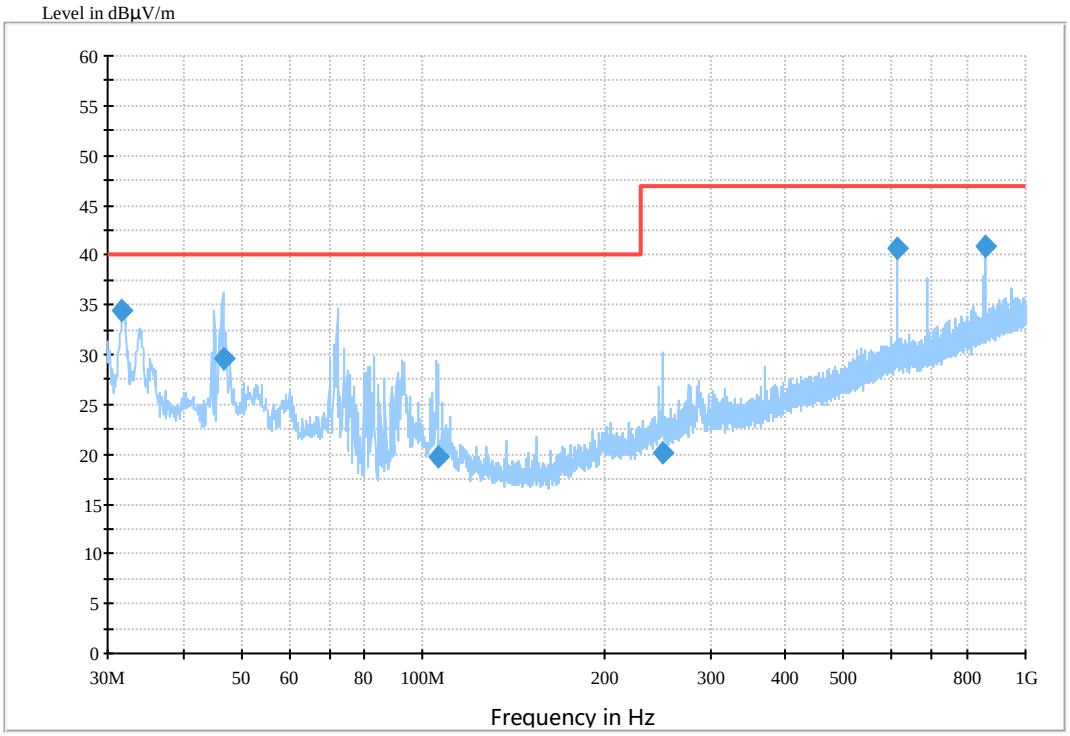
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1937.400000	33.9	-5.2	50.0	16.1	100.0	-2.0	VERTICAL
2062.633333	34.0	-4.2	50.0	16.0	100.0	6.0	VERTICAL
2480.633333	22.7	-2.4	50.0	27.3	192.0	291.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.19 Radiated Emission of TC30

30MHz-1GHz:

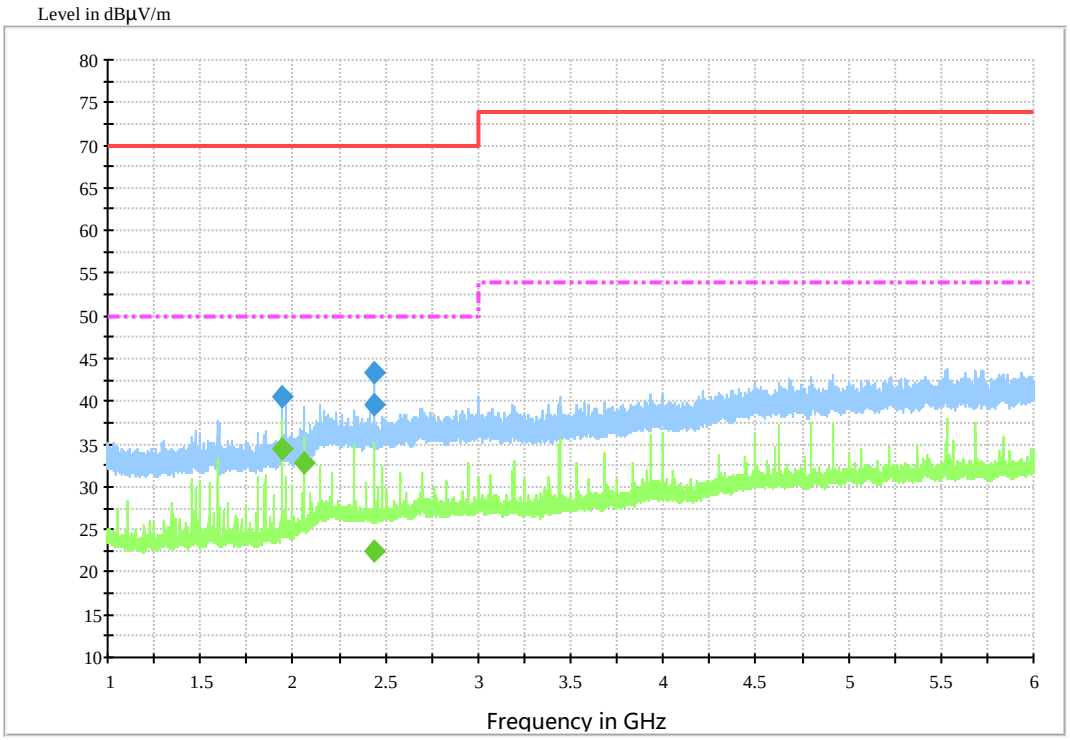


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
31.767270	34.5	-19.7	40.0	5.5	100.0	19.0	VERTICAL
46.750580	29.6	-16.5	40.0	10.4	100.0	311.0	VERTICAL
105.971500	19.8	-18.3	40.0	20.2	109.0	38.0	VERTICAL
249.466000	20.1	-16.1	47.0	26.9	100.0	24.0	HORIZONTAL
614.413000	40.8	-6.5	47.0	6.2	100.0	62.0	HORIZONTAL
860.182000	40.9	-2.4	47.0	6.1	140.0	86.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1937.633333	40.5	-5.2	70.0	29.5	100.0	-10.0	VERTICAL
2435.233333	43.3	-2.6	70.0	26.7	167.0	282.0	HORIZONTAL
2436.500000	39.6	-2.6	70.0	30.4	179.0	275.0	HORIZONTAL

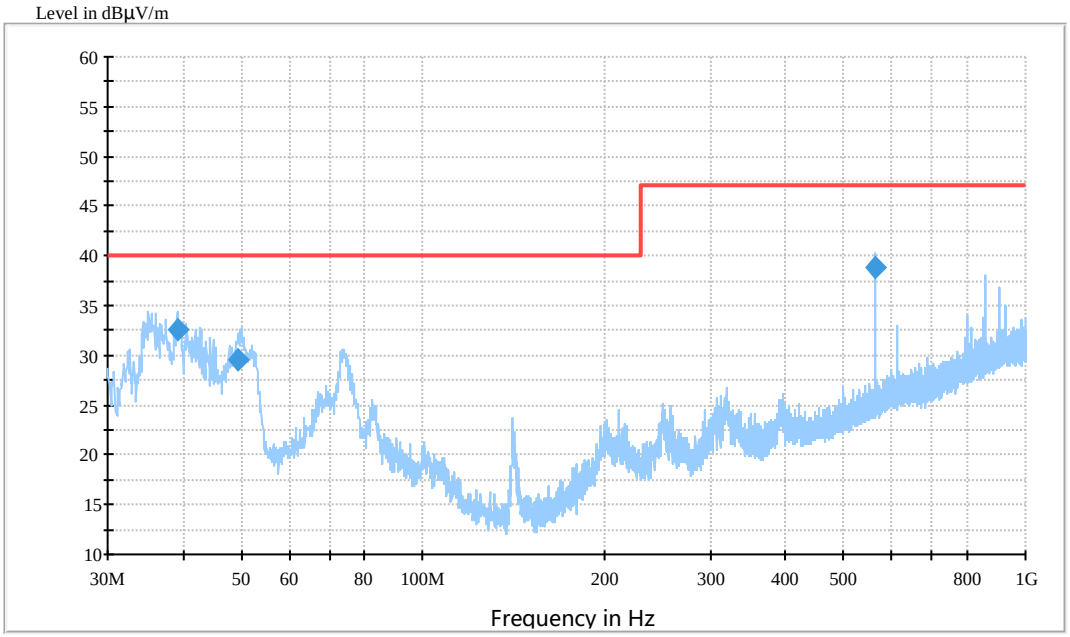
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1937.566667	34.4	-5.2	50.0	15.6	100.0	-10.0	VERTICAL
2062.566667	32.8	-4.2	50.0	17.2	100.0	7.0	VERTICAL
2435.333333	22.5	-2.6	50.0	27.5	150.0	326.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.20 Radiated Emission of TC31

30MHz-1GHz:

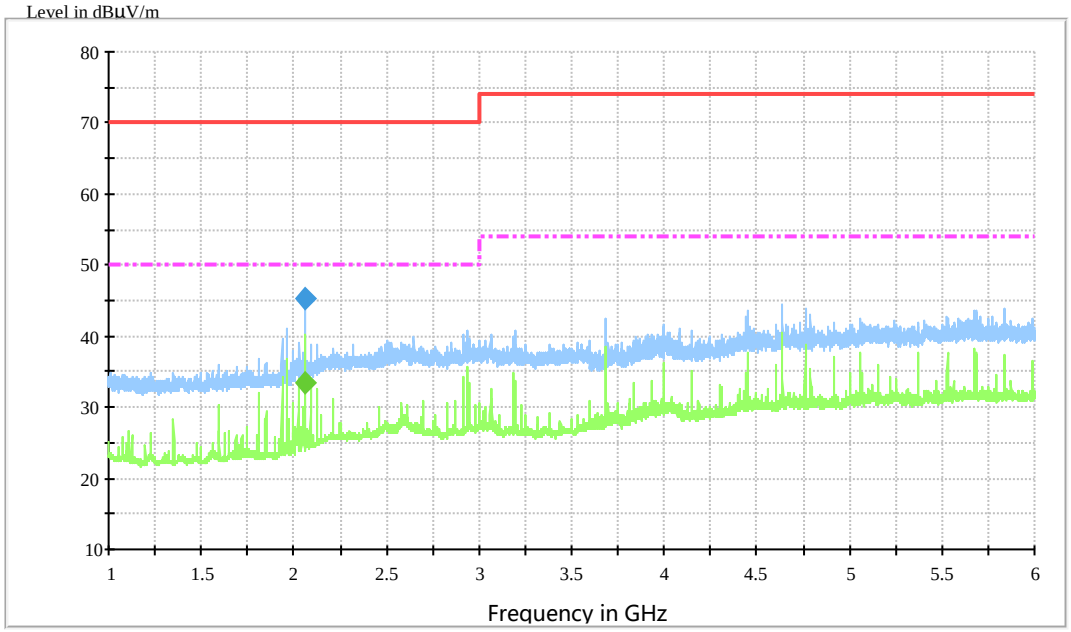


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
39.162410	32.5	-14.3	40.0	7.5	100.0	1.0	VERTICAL
49.502545	29.5	-12.7	40.0	10.5	100.0	160.0	VERTICAL
562.477500	38.8	-5.8	47.0	8.2	100.0	32.0	VERTICAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2062.587500	45.4	-4.2	70.0	24.6	100.0	249.0	HORIZONTAL

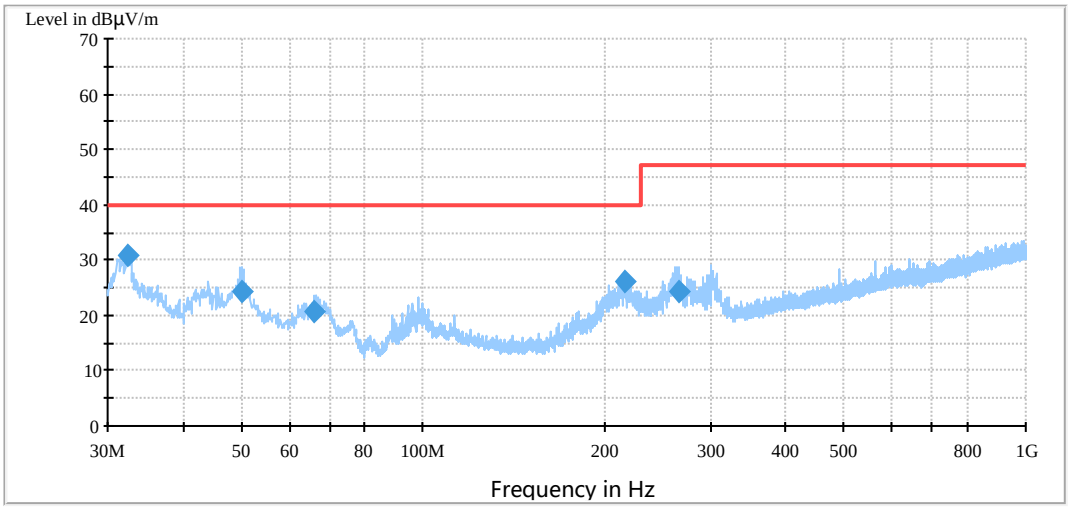
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2062.587500	33.3	-4.2	50.0	16.7	100.0	251.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.21 Radiated Emission of TC32

30MHz-1GHz:

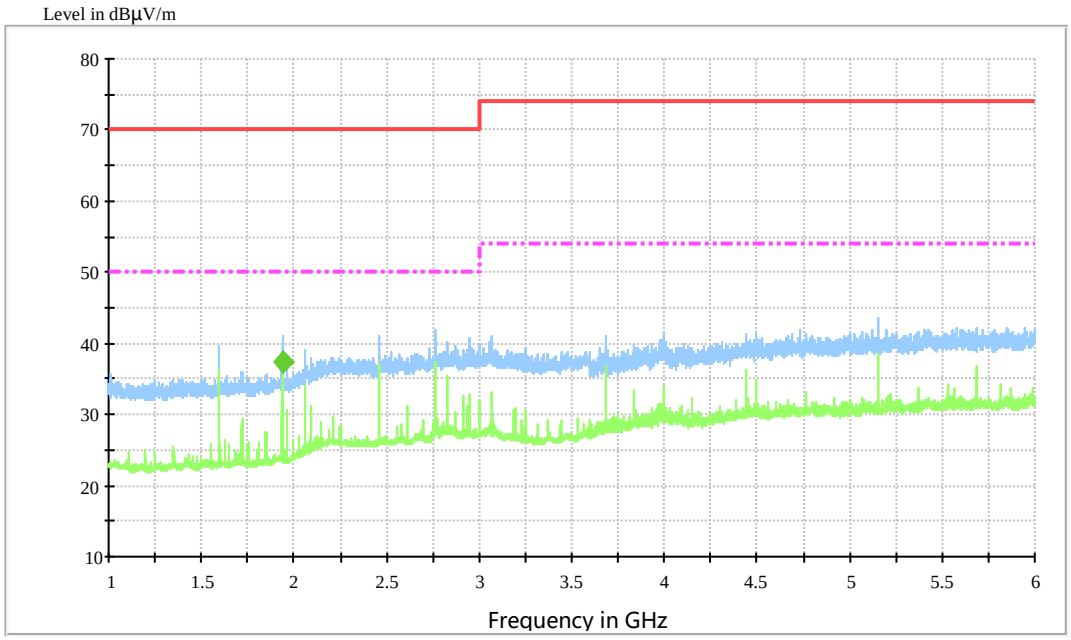


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.406360	30.9	-16.2	40.0	9.1	100.0	284.0	VERTICAL
50.165120	24.2	-12.6	40.0	15.8	100.0	-37.0	VERTICAL
66.236155	20.7	-15.7	40.0	19.3	100.0	276.0	VERTICAL
216.695500	26.1	-14.4	40.0	13.9	106.0	310.0	VERTICAL
265.273500	24.3	-12.8	47.0	22.7	100.0	165.0	HORIZONTAL

Notes:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz



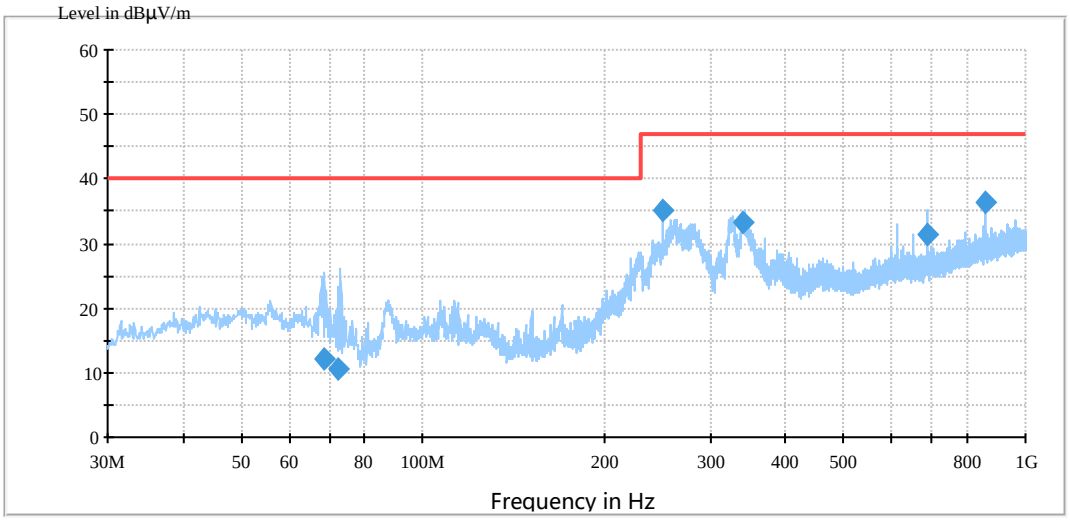
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1937.494167	37.4	-5.2	50.0	12.6	100.0	157.0	HORIZONTAL

Note:
Margin=Limit-Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.22 Radiated Emission of TC33

30MHz-1GHz:

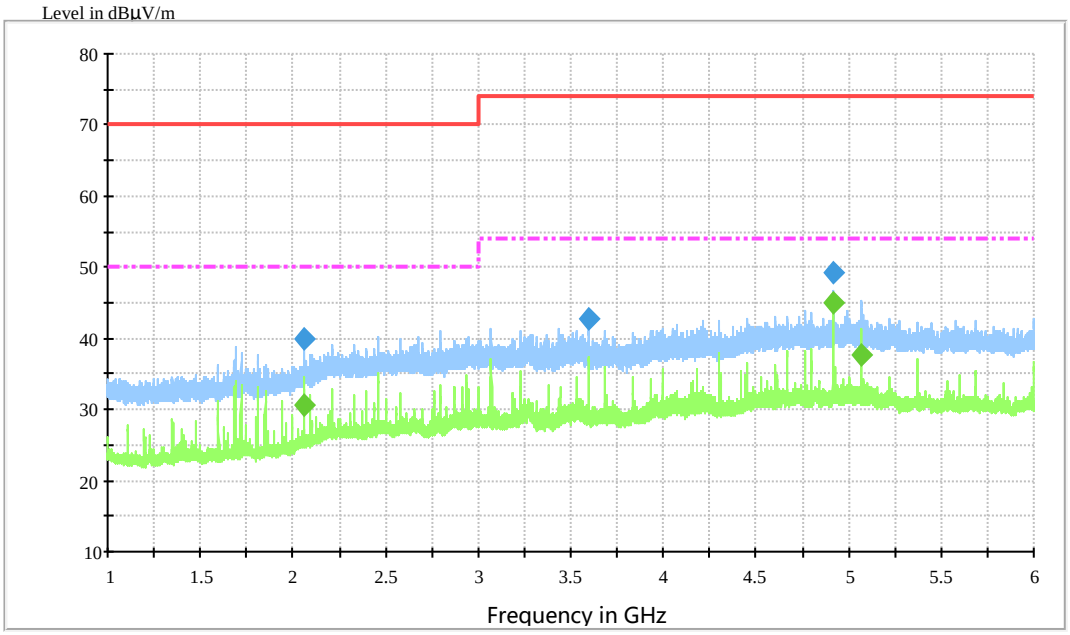


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
68.333425	12.0	-16.4	40.0	28.0	112.0	13.0	HORIZONTAL
72.509630	10.5	-17.7	40.0	29.5	100.0	-30.0	HORIZONTAL
250.006000	35.2	-13.1	47.0	11.8	100.0	85.0	HORIZONTAL
340.865500	33.3	-10.9	47.0	13.7	100.0	90.0	HORIZONTAL
687.485000	31.3	-4.3	47.0	15.7	100.0	108.0	HORIZONTAL
860.182000	36.3	-1.4	47.0	10.7	100.0	54.0	HORIZONTAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz:



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2062.345167	40.0	-4.3	70.0	30.0	100.0	63.0	VERTICAL
3599.834833	42.6	-0.7	74.0	31.4	146.0	0.0	VERTICAL
4915.050000	49.3	3.6	74.0	24.7	137.0	30.0	HORIZONTAL

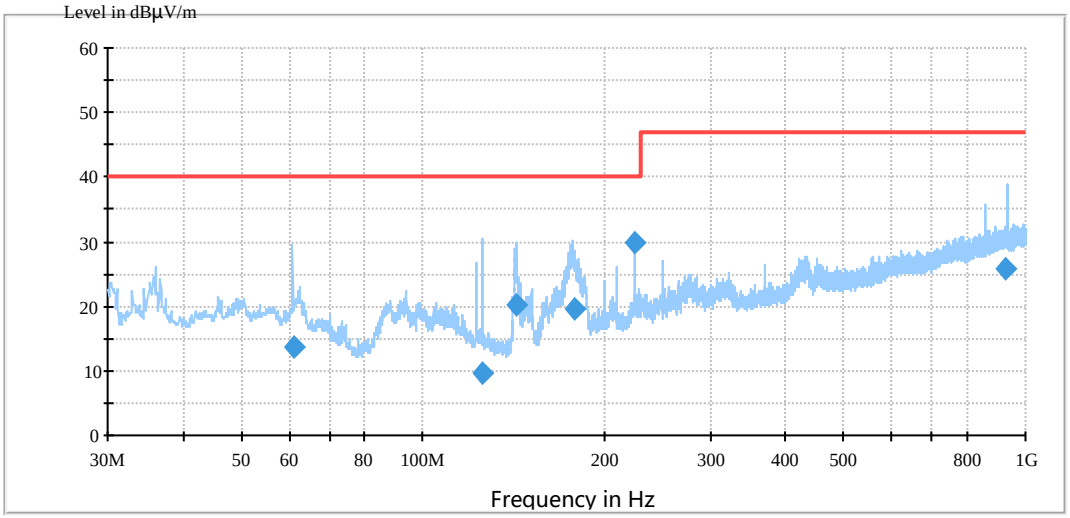
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2062.509833	30.7	-4.2	50.0	19.3	100.0	95.0	VERTICAL
4915.379833	44.9	3.6	54.0	9.1	137.0	31.0	HORIZONTAL
5068.944833	37.6	3.9	54.0	16.4	100.0	30.0	HORIZONTAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.23 Radiated Emission of TC34

30MHz-1GHz:

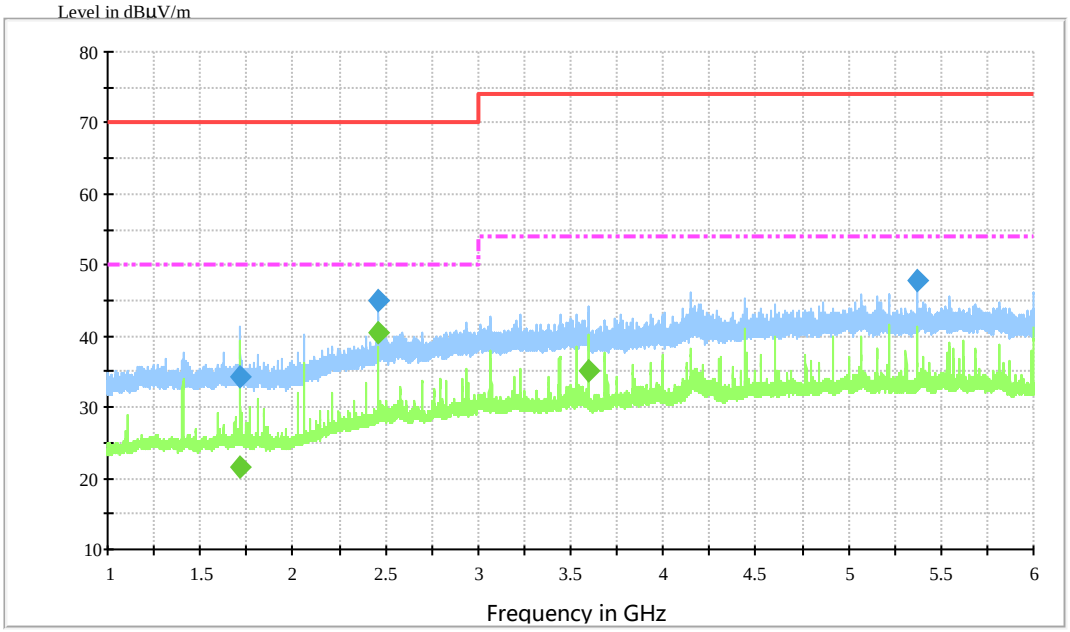


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
60.846000	29.5	-13.9	40.0	10.5	100.0	15.0	VERTICAL
125.739000	30.6	-17.3	40.0	9.4	100.0	26.0	HORIZONTAL
142.617000	30.0	-18.0	40.0	10.0	100.0	26.0	VERTICAL
177.537000	29.9	-16.6	40.0	10.1	200.0	56.0	HORIZONTAL
224.970000	28.8	-13.7	40.0	11.2	100.0	54.0	HORIZONTAL
933.361000	39.0	-0.8	47.0	8.0	100.0	346.0	VERTICAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz:



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1718.444833	34.3	-4.8	70.0	35.7	211.0	-29.0	VERTICAL
2457.725000	45.0	-1.3	70.0	25.0	175.0	198.0	HORIZONTAL
5376.074833	47.8	6.3	74.0	26.2	113.0	168.0	VERTICAL

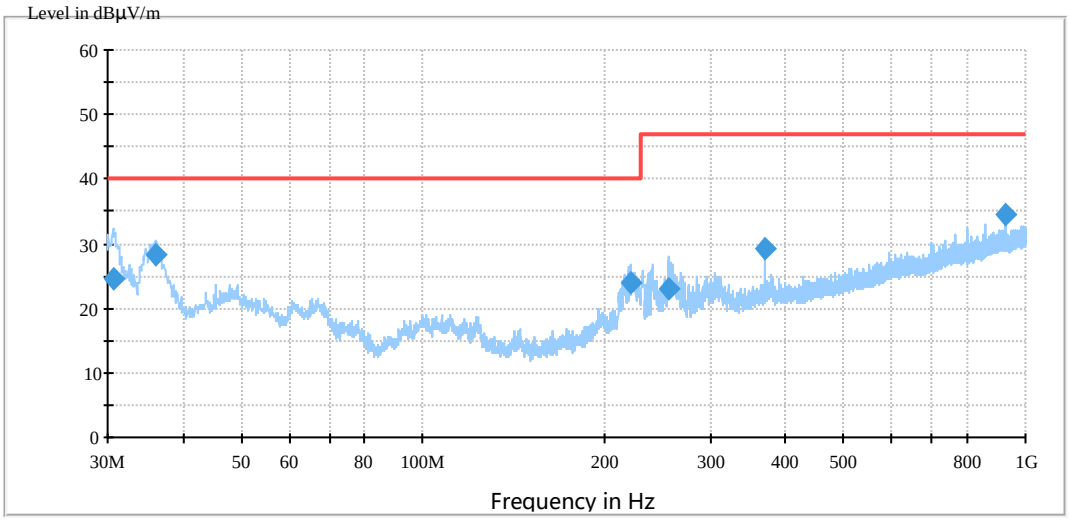
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1718.680167	21.7	-4.8	50.0	28.3	200.0	1.0	VERTICAL
2457.725000	40.4	-1.3	50.0	9.6	186.0	197.0	HORIZONTAL
3600.165167	35.2	1.6	54.0	18.8	150.0	275.0	VERTICAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.24 Radiated Emission of TC35

30MHz-1GHz:

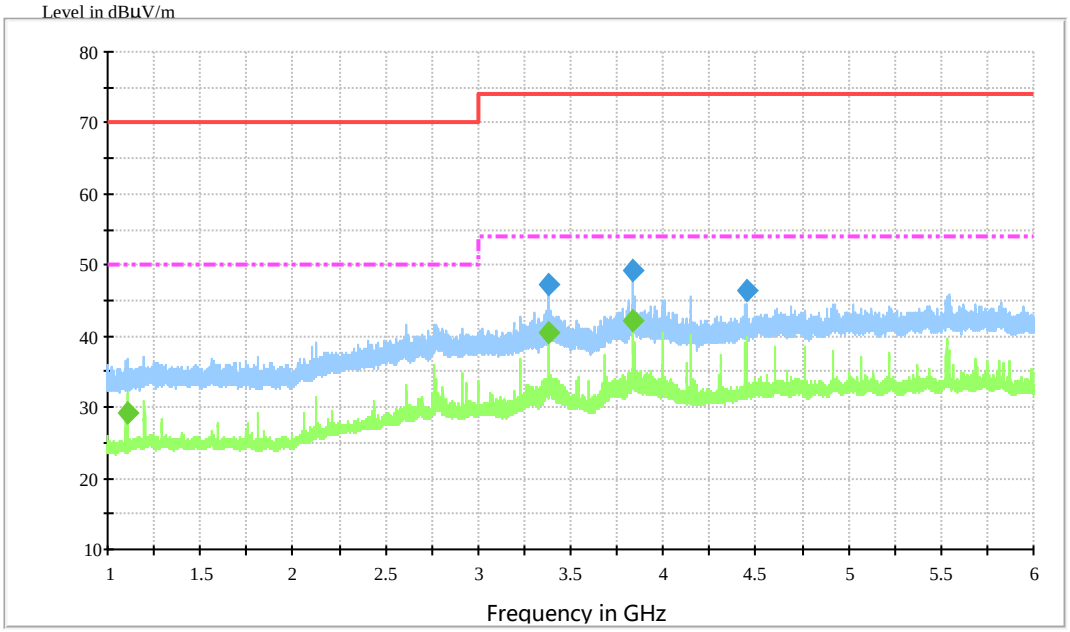


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
30.669090	24.5	-16.0	40.0	15.5	100.0	21.0	VERTICAL
35.977415	28.2	-15.2	40.0	11.8	100.0	212.0	VERTICAL
220.543000	24.0	-13.8	40.0	16.0	149.0	146.0	HORIZONTAL
256.149000	22.9	-13.0	47.0	24.1	100.0	146.0	HORIZONTAL
368.644000	29.3	-9.8	47.0	17.7	100.0	79.0	HORIZONTAL
925.014000	34.6	-0.9	47.0	12.4	100.0	128.0	HORIZONTAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz:



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3378.975167	47.2	1.1	74.0	26.8	100.0	251.0	VERTICAL
3839.834833	49.2	2.2	74.0	24.8	187.0	41.0	HORIZONTAL
4454.450000	46.5	4.0	74.0	27.5	150.0	24.0	HORIZONTAL

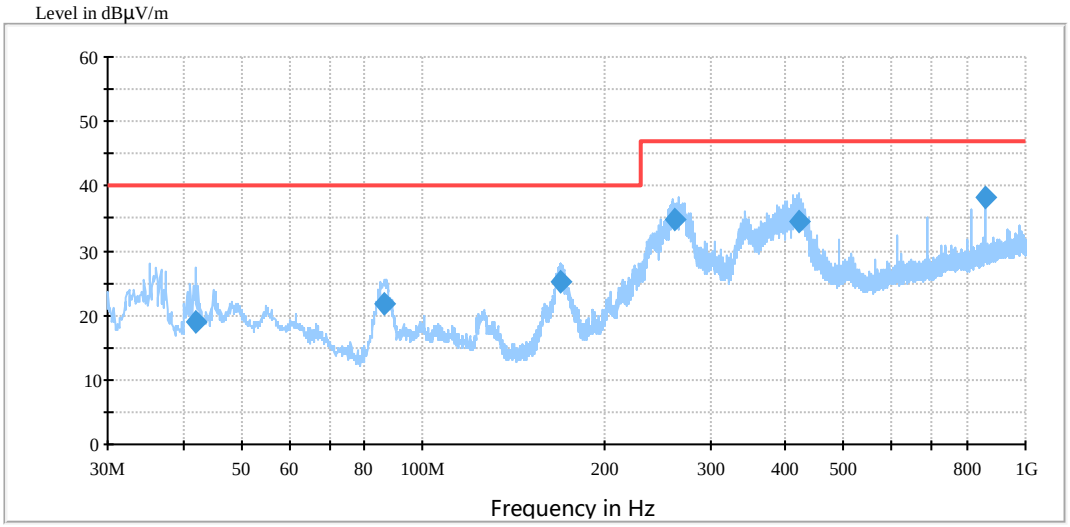
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1105.740000	29.3	-6.2	50.0	20.7	100.0	67.0	HORIZONTAL
3379.375167	40.5	1.1	54.0	13.5	100.0	252.0	VERTICAL
3839.834833	42.2	2.2	54.0	11.8	175.0	41.0	HORIZONTAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.25 Radiated Emission of TC36

30MHz-1GHz:

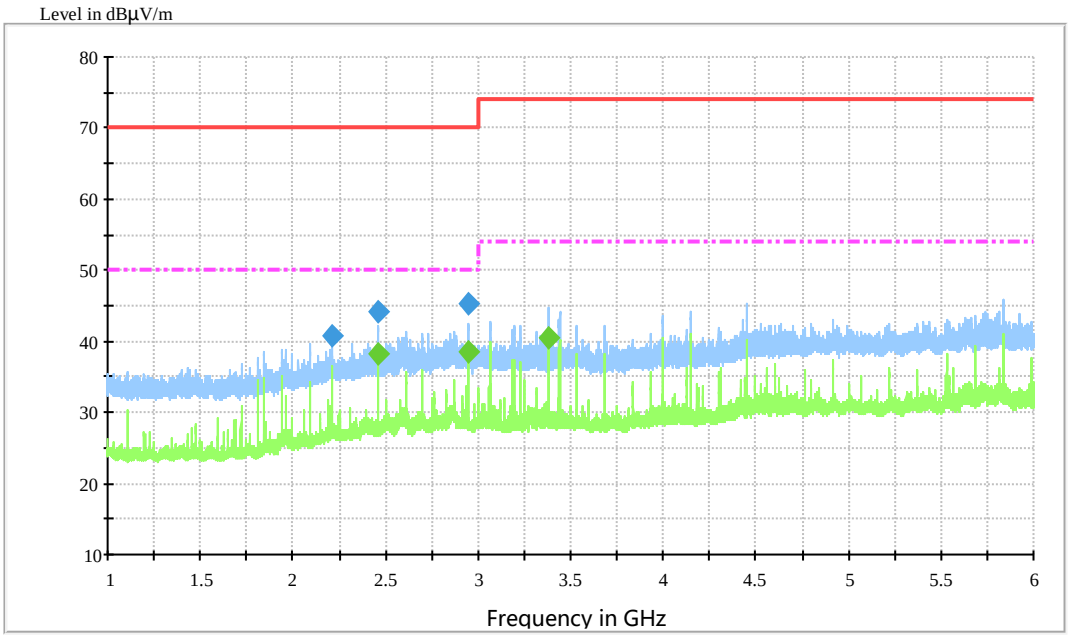


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
42.026500	19.1	-14.2	40.0	20.9	103.0	16.0	VERTICAL
86.220000	21.8	-17.8	40.0	18.2	215.0	96.0	HORIZONTAL
169.909000	25.1	-17.1	40.0	14.9	129.0	82.0	HORIZONTAL
260.981000	34.9	-12.9	47.0	12.1	103.0	56.0	HORIZONTAL
422.600000	34.5	-9.0	47.0	12.5	106.0	128.0	VERTICAL
860.172000	38.4	-1.8	47.0	8.6	103.0	66.0	HORIZONTAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz:



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2211.950167	40.8	-3.1	70.0	29.2	200.0	73.0	HORIZONTAL
2457.490167	44.1	-2.7	70.0	25.9	129.0	71.0	VERTICAL
2948.944833	45.3	-0.3	70.0	24.7	100.0	49.0	VERTICAL

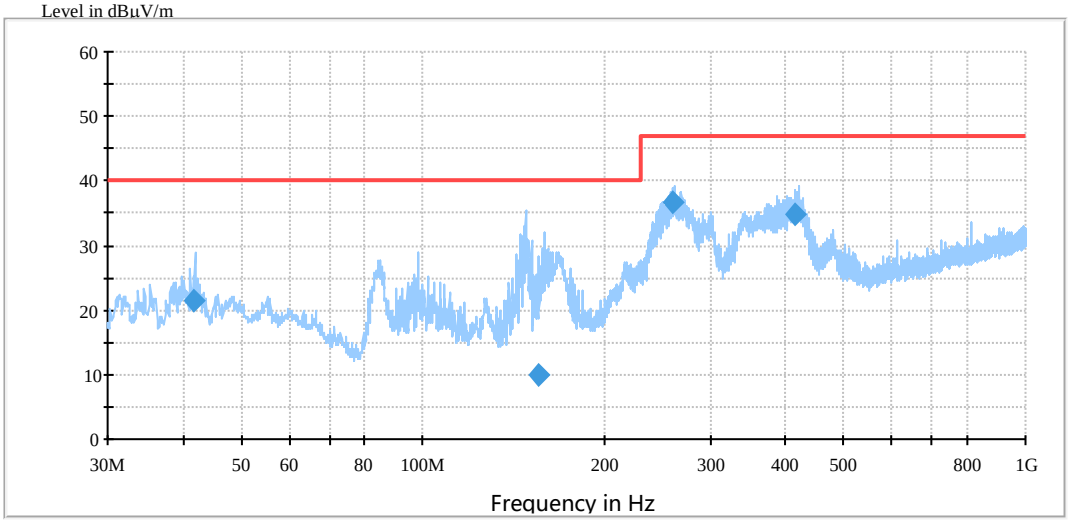
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2457.490167	38.2	-2.7	50.0	11.8	141.0	71.0	VERTICAL
2949.275167	38.6	-0.3	50.0	11.4	103.0	45.0	VERTICAL
3379.375167	40.4	-1.0	54.0	13.6	103.0	127.0	VERTICAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.1.26 Radiated Emission of TC37

30MHz-1GHz:

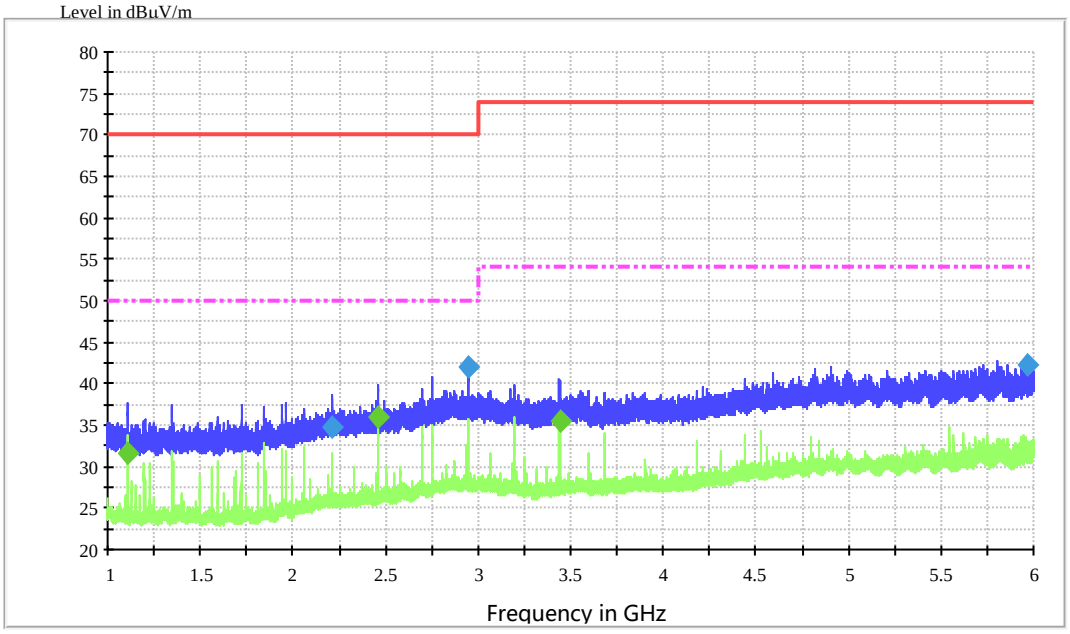


Measurement Result: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
41.574500	21.4	-14.3	40.0	18.6	100.0	288.0	VERTICAL
155.406500	9.9	-17.7	40.0	30.1	100.0	12.0	VERTICAL
260.573500	36.5	-12.9	47.0	10.5	100.0	265.0	HORIZONTAL
414.611500	34.8	-9.2	47.0	12.2	118.0	109.0	VERTICAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

1GHz-6GHz:



Measurement Result: PK Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
2212.940000	34.8	-3.1	70.0	35.2	193.0	119.0	VERTICAL
2948.986833	42.0	-0.3	70.0	28.0	103.0	42.0	VERTICAL
5967.612500	42.3	5.4	74.0	31.7	100.0	155.0	VERTICAL

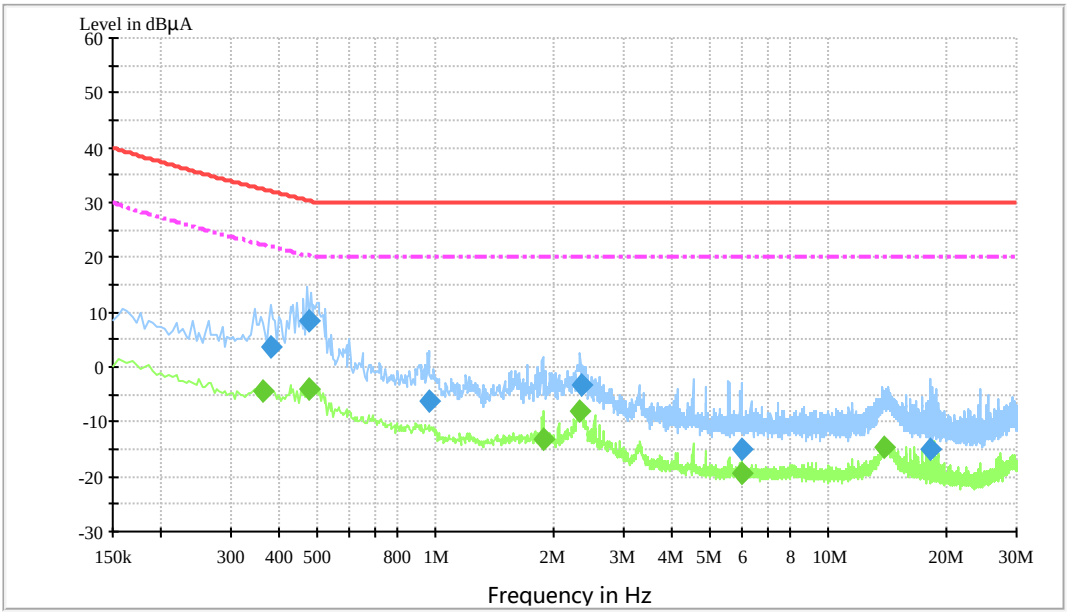
Measurement Result: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
1105.904333	31.6	-6.6	50.0	18.4	100.0	53.0	HORIZONTAL
2457.778167	36.0	-2.7	50.0	14.0	103.0	120.0	HORIZONTAL
3440.731833	35.4	-0.8	54.0	18.6	100.0	144.0	VERTICAL

Note:
Margin= Limit- Level
Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)
The reading level is used to calculate by software which is not shown in the sheet.

10.2 Conducted Disturbance

10.2.1 FE Port of UMPT Test Data



Measurement Result: QP Detector

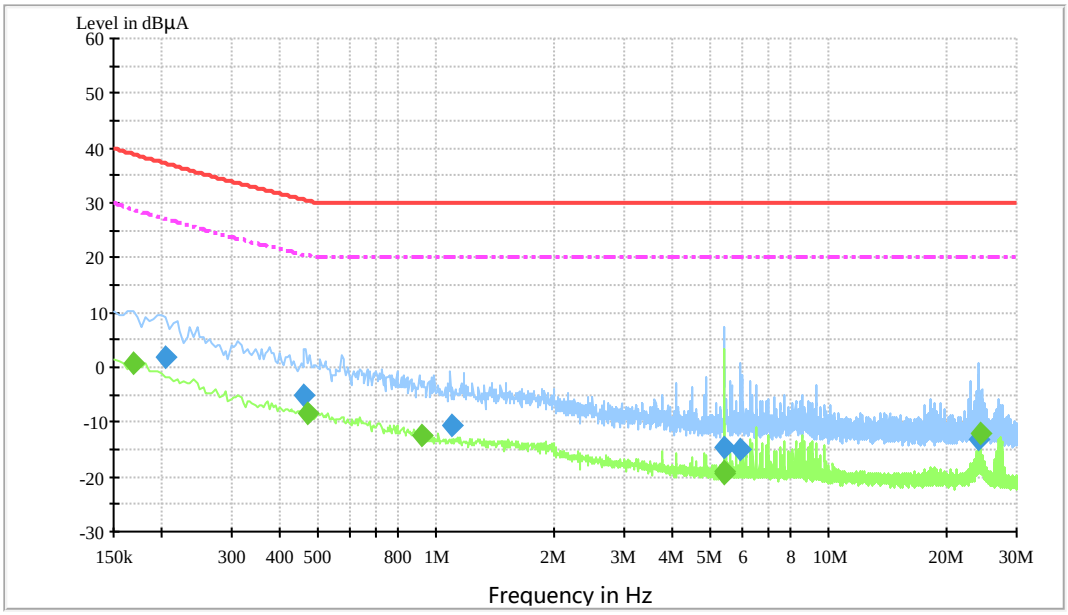
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.379499	3.5	-2.7	32.0	28.5	---	---
0.474000	8.6	-3.9	30.4	21.8	---	---
0.964800	-6.4	-8.0	30.0	36.4	---	---
2.334360	-3.3	-10.5	30.0	33.3	---	---
6.006000	-15.0	-13.4	30.0	45.0	---	---
18.095250	-15.0	-14.8	30.0	45.0	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.361500	-4.6	-2.4	22.3	26.9	---	---
0.474000	-4.0	-3.9	20.4	24.4	---	---
1.878345	-13.3	-9.7	20.0	33.3	---	---
2.320860	-8.0	-10.4	20.0	28.0	---	---
5.992500	-19.6	-13.4	20.0	39.6	---	---
13.886715	-14.6	-14.5	20.0	34.6	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.2 GE Ports of UMPT Test Data



Measurement Result: QP Detector

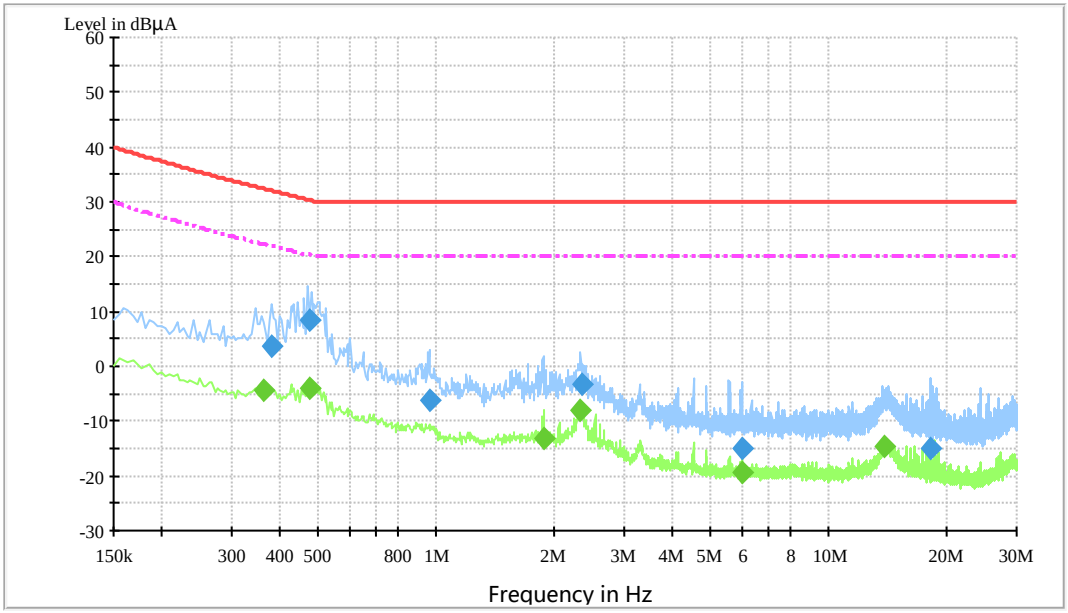
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.204000	1.9	2.2	37.2	35.3	---	---
0.460500	-5.3	-3.8	30.6	35.9	---	---
1.086908	-10.8	-8.4	30.0	40.8	---	---
5.415015	-14.5	-13.3	30.0	44.5	---	---
5.934360	-14.9	-13.4	30.0	44.9	---	---
23.978798	-13.2	-15.3	30.0	43.2	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.168000	0.6	3.6	28.9	28.3	---	---
0.469500	-8.5	-3.9	20.4	28.9	---	---
0.914925	-12.4	-7.6	20.0	32.4	---	---
5.374582	-19.5	-13.3	20.0	39.5	---	---
5.419515	-19.0	-13.3	20.0	39.0	---	---
24.180600	-12.1	-15.3	20.0	32.1	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.3 E1 Ports of UMPT Test Data



Measurement Result: QP Detector

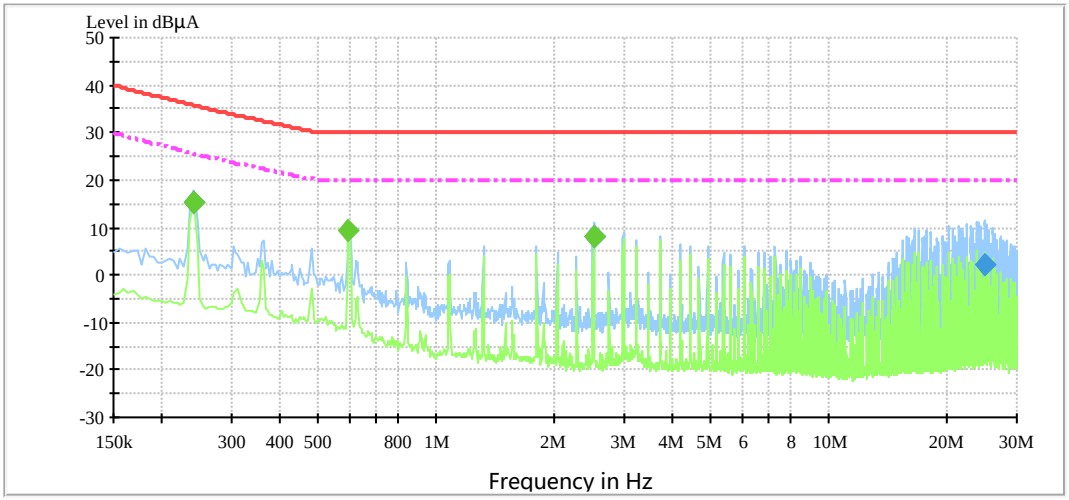
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.379499	3.5	-2.7	32.0	28.5	---	---
0.474000	8.6	-3.9	30.4	21.8	---	---
0.964800	-6.4	-8.0	30.0	36.4	---	---
2.334360	-3.3	-10.5	30.0	33.3	---	---
6.006000	-15.0	-13.4	30.0	45.0	---	---
18.095250	-15.0	-14.8	30.0	45.0	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.361500	-4.6	-2.4	22.3	26.9	---	---
0.474000	-4.0	-3.9	20.4	24.4	---	---
1.878345	-13.3	-9.7	20.0	33.3	---	---
2.320860	-8.0	-10.4	20.0	28.0	---	---
5.992500	-19.6	-13.4	20.0	39.6	---	---
13.886715	-14.6	-14.5	20.0	34.6	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.4 GNSS Ports of UMPT Test Data



Measurement Result: QP Detector

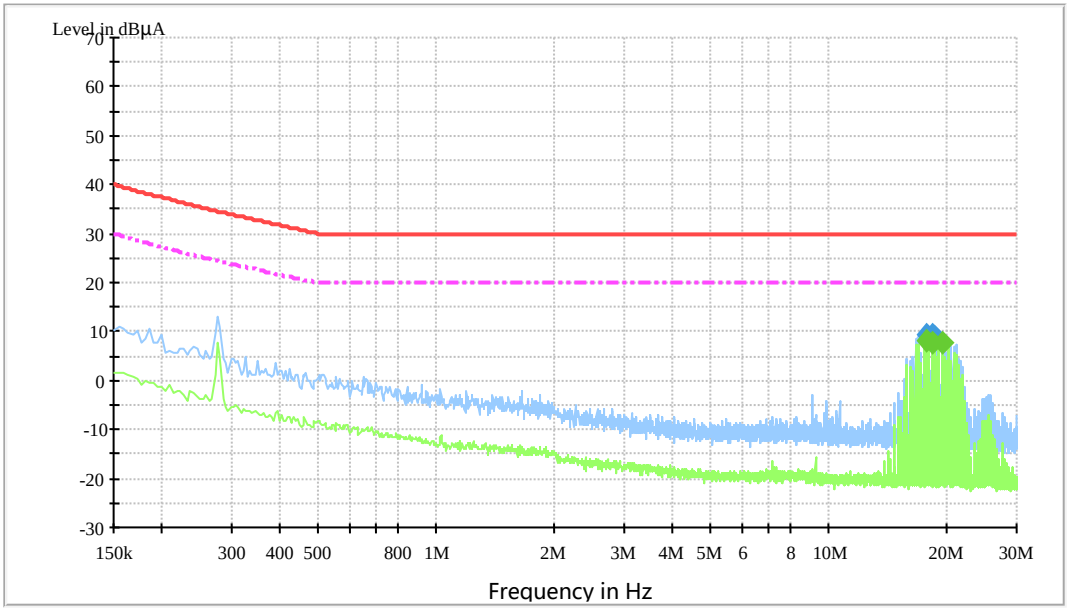
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.240000	15.4	-2.6	35.8	20.4	---	---
2.508960	8.2	-13.4	30.0	21.8	---	---
24.843360	2.0	-15.0	30.0	28.0	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.240000	15.1	-2.6	25.6	10.5	---	---
0.595500	9.2	-6.9	20.0	10.8	---	---
2.508960	8.0	-13.4	20.0	12.0	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
All the test configurations with UMPT board were tested, and only the worst test result was supplied.

10.2.5 E1 Ports of UTRP Test Data



Measurement Result: QP Detector

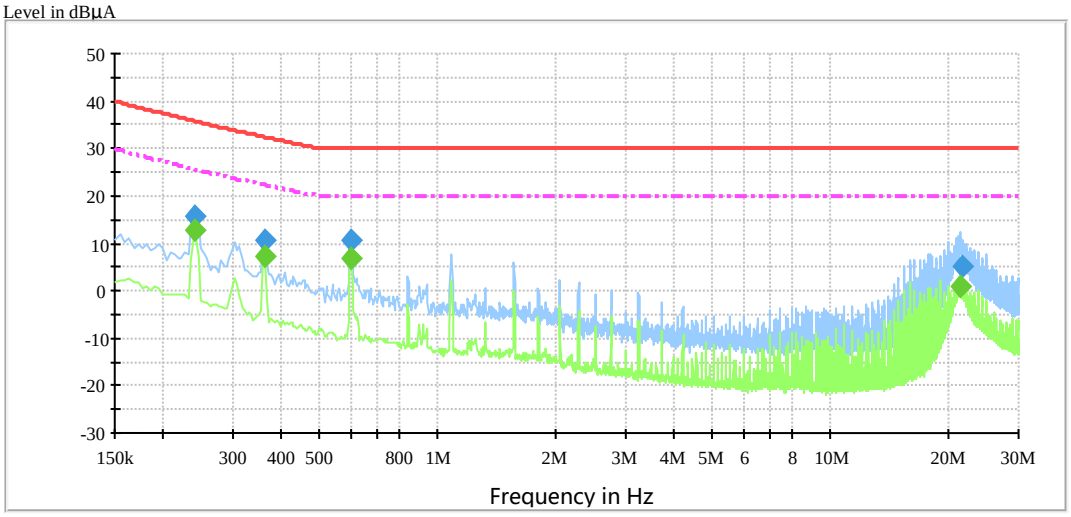
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
17.688045	9.4	-14.8	30.0	20.6	---	---
18.238800	9.5	-14.8	30.0	20.5	---	---
18.516405	9.0	-14.8	30.0	21.0	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
17.688068	8.3	-14.8	20.0	11.7	---	---
18.238800	7.7	-14.8	20.0	12.3	---	---
19.344765	7.6	-14.9	20.0	12.4	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.6 FE/GE Ports of UMPTe Test Data



Measurement Result: QP Detector

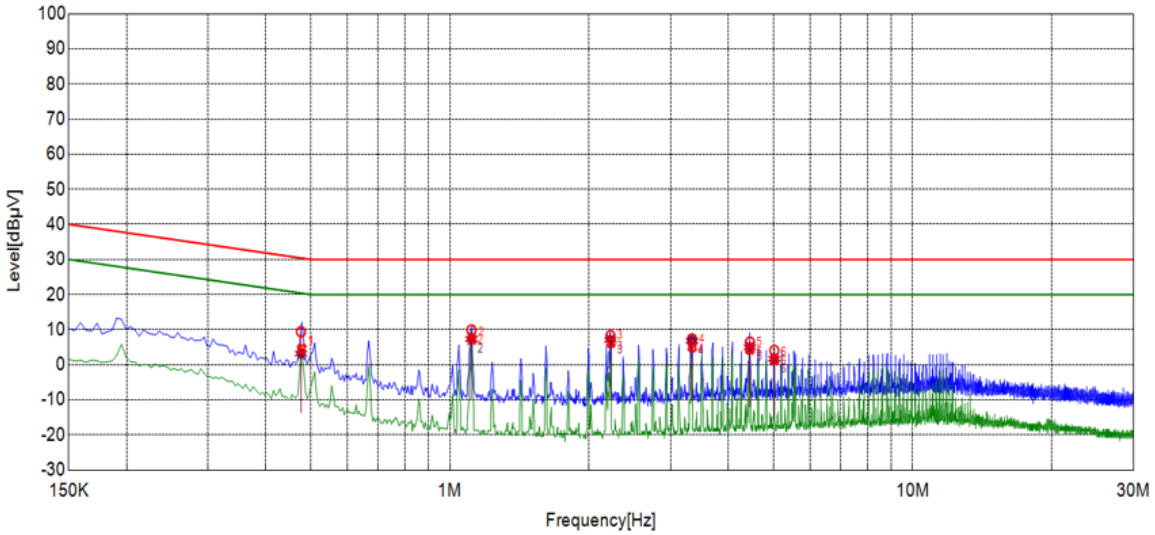
Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Line	PE
0.240000	15.8	1.9	35.8	20.0	---	---
0.361500	10.5	-1.5	32.4	21.9	---	---
0.600000	10.6	-5.1	30.0	19.4	---	---
21.628492	5.2	-16.1	30.0	24.8	---	---

Measurement Result: AV Detector

Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Line	PE
0.240000	12.9	1.9	25.6	12.7	---	---
0.361500	7.2	-1.5	22.3	15.1	---	---
0.600000	7.0	-5.1	20.0	13.0	---	---
21.309938	1.0	-16.1	20.0	19.0	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.7 FE/GE Ports of UMPTg Test Data



Measurement Result: QP Detector

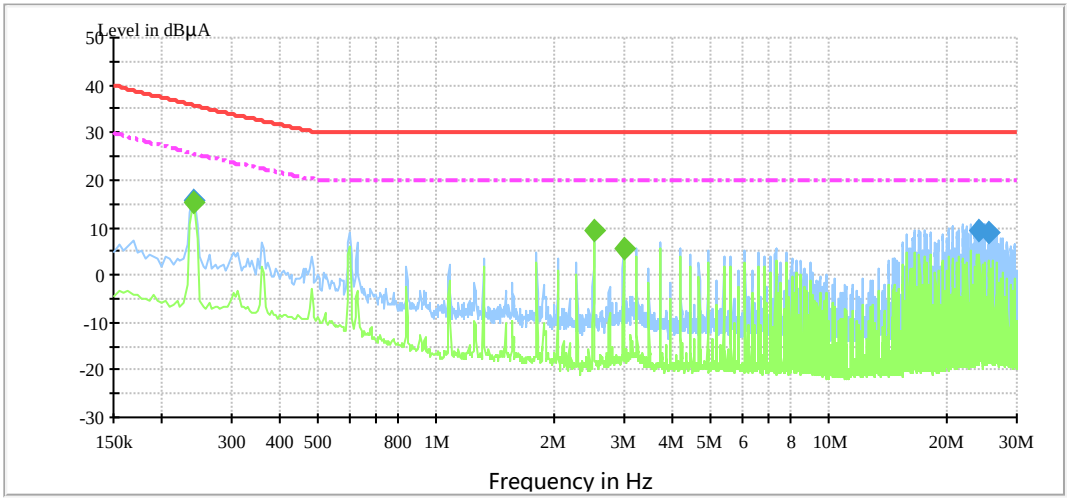
Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Line	PE
0.4764	9.41	-4.67	30.40	20.99	---	---
1.1128	9.91	-12.13	30.00	20.09	---	---
2.2230	8.28	-13.46	30.00	21.72	---	---
3.3371	7.32	-13.39	30.00	22.68	---	---
4.4514	6.45	-13.33	30.00	23.55	---	---
5.0265	4.06	-13.30	30.00	25.94	---	---

Measurement Result: AV Detector

Frequency MHz	Level dBµA	Transd dB	Limit dBµA	Margin dB	Line	PE
0.4764	20.40	-4.67	20.40	17.19	---	---
1.1128	20.00	-12.13	20.00	12.64	---	---
2.2230	20.00	-13.46	20.00	12.96	---	---
3.3371	20.00	-13.39	20.00	13.20	---	---
4.4514	20.00	-13.33	20.00	15.03	---	---
5.0265	20.00	-13.30	20.00	18.28	---	---

Note:
Margin= Limit- Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.8 GNSS Ports of UMPTe Test Data



Measurement Result: QP Detector

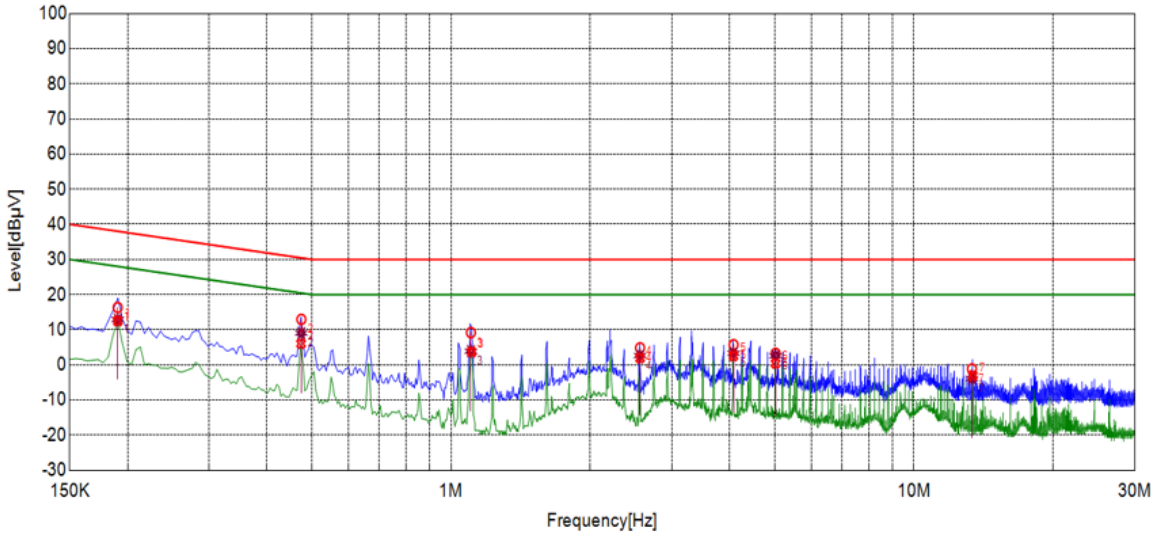
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.240000	15.5	-2.6	35.8	20.2	---	---
24.126802	9.5	-15.0	30.0	20.5	---	---
25.331408	8.8	-15.1	30.0	21.2	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.240000	15.4	-2.6	25.6	10.3	---	---
2.508960	9.5	-13.4	20.0	10.5	---	---
2.988052	5.4	-13.4	20.0	14.6	---	---

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
All the test configurations with UMPTe board were tested, and only the worst test result was supplied.

10.2.9 GNSS Ports of UMPTg Test Data



Measurement Result: QP Detector

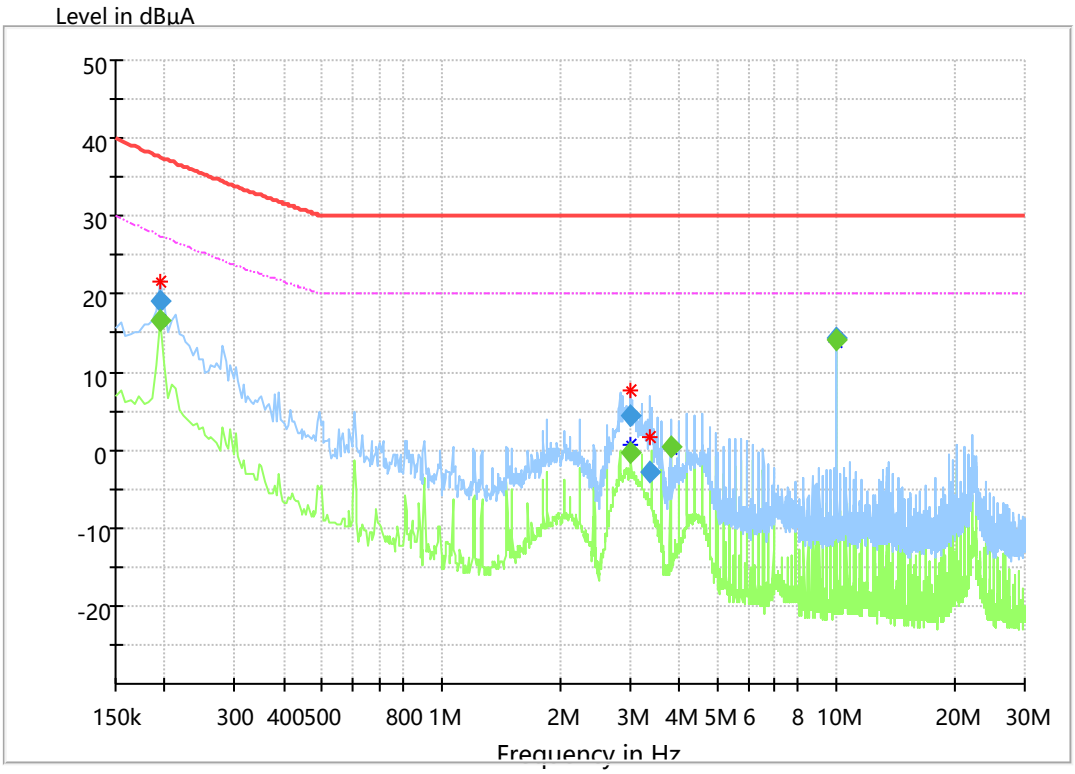
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.1903	16.34	-1.50	38.02	21.68	---	---
0.4746	12.95	-4.65	30.43	17.48	---	---
1.1037	9.18	-12.10	30.00	20.82	---	---
2.5608	4.86	-13.44	30.00	25.14	---	---
4.0789	5.74	-13.35	30.00	24.26	---	---
5.0281	3.28	-13.30	30.00	26.72	---	---
13.3569	-1.17	-14.97	30.00	31.17	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.1903	12.93	-1.50	28.02	15.09	---	---
0.4746	9.06	-4.65	20.43	11.37	---	---
1.1037	3.92	-12.10	20.00	16.08	---	---
2.5608	2.65	-13.44	20.00	17.35	---	---
4.0789	3.30	-13.35	20.00	16.70	---	---
5.0281	2.57	-13.30	20.00	17.43	---	---
13.3569	-3.89	-14.97	20.00	23.89	---	---

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.10 GNSS Ports of USCU Test Data



Measurement Result: QP Detector

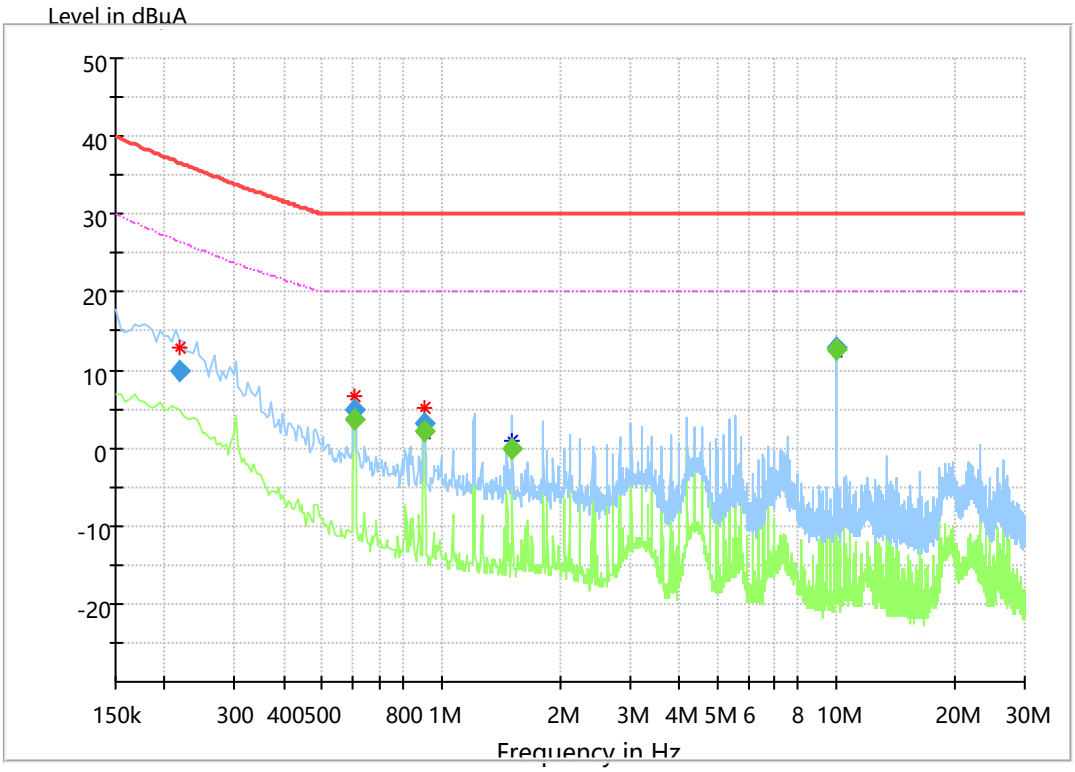
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.195000	19.14	3.1	37.57	18.43	---	---
3.023873	4.46	-12.3	30.00	25.54	---	---
3.364118	-2.80	-12.5	30.00	32.80	---	---
9.999998	14.28	-15.4	30.00	15.72	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.195000	16.65	3.1	27.46	10.81	---	---
3.028373	-0.23	-12.3	20.00	20.23	---	---
3.807458	0.35	-12.8	20.00	19.65	---	---
9.999998	14.15	-15.4	20.00	5.85	---	---

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.11 RGPS Ports of USCU Test Data



Measurement Result: QP Detector

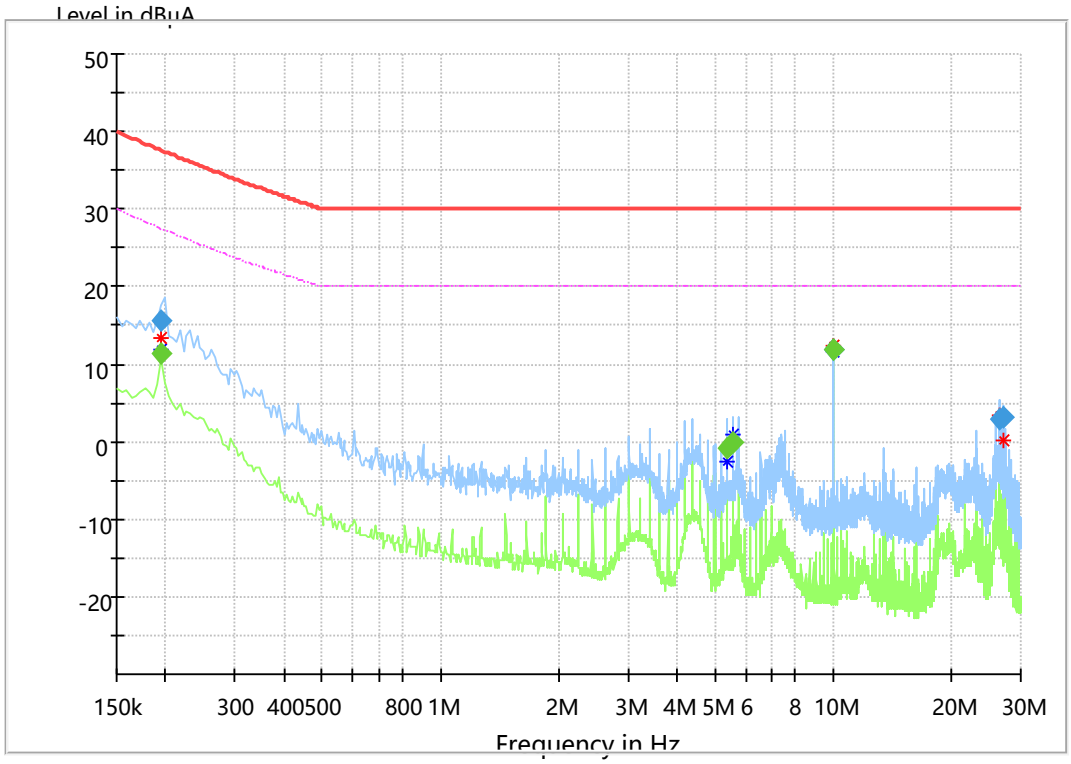
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.217500	9.89	2.2	36.60	26.72	---	---
0.604500	4.87	-5.3	30.00	25.13	---	---
0.905970	3.22	-7.3	30.00	26.78	---	---
9.999998	12.74	-15.4	30.00	17.26	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.604500	3.59	-5.3	20.00	16.41	---	---
0.905970	2.16	-7.3	20.00	17.84	---	---
1.510433	-0.18	-9.0	20.00	20.18	---	---
9.999998	12.52	-15.4	20.00	7.48	---	---

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.12 TOD Ports of USCU Test Data



Measurement Result: QP Detector

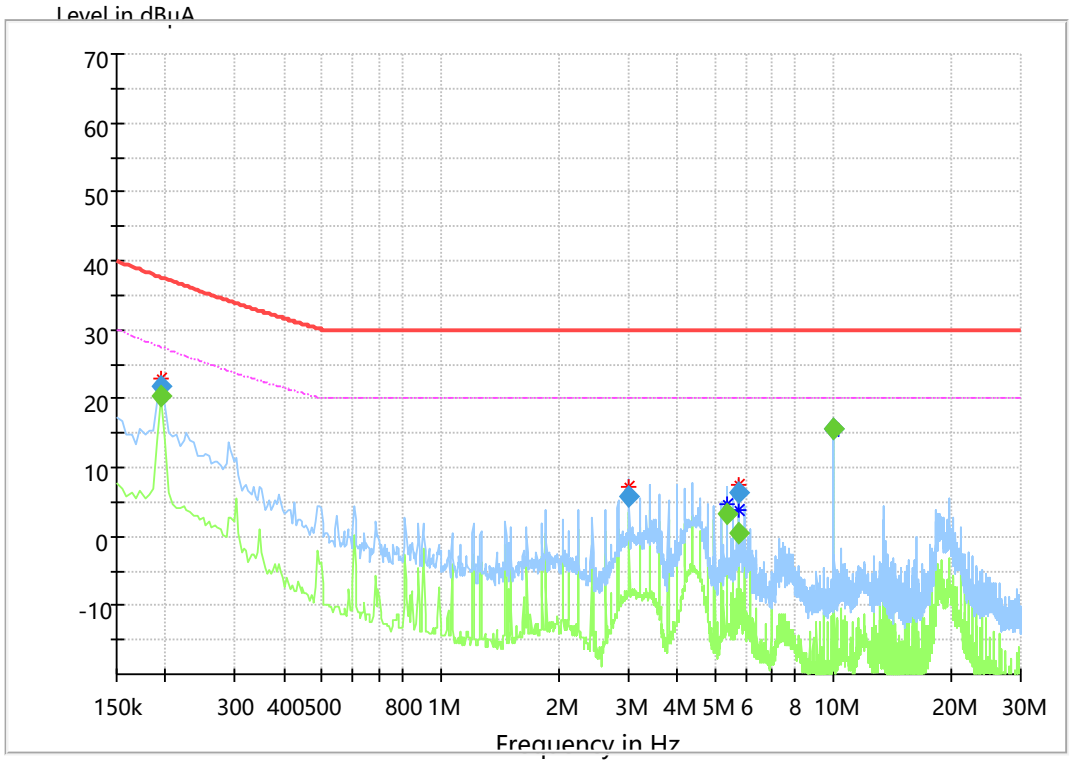
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.195000	15.50	3.1	27.46	16.19	---	---
9.999998	11.99	-13.9	20.00	20.82	---	---
26.549265	2.88	-14.0	20.00	20.01	---	---
27.158205	3.11	-15.4	20.00	8.21	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.195000	11.28	3.1	37.57	22.06	---	---
5.370150	-0.82	-15.4	30.00	18.01	---	---
5.567183	-0.01	-17.2	30.00	27.12	---	---
9.999998	11.79	-17.2	30.00	26.89	---	---

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.13 BITS Ports of USCU Test Data



Measurement Result: QP Detector

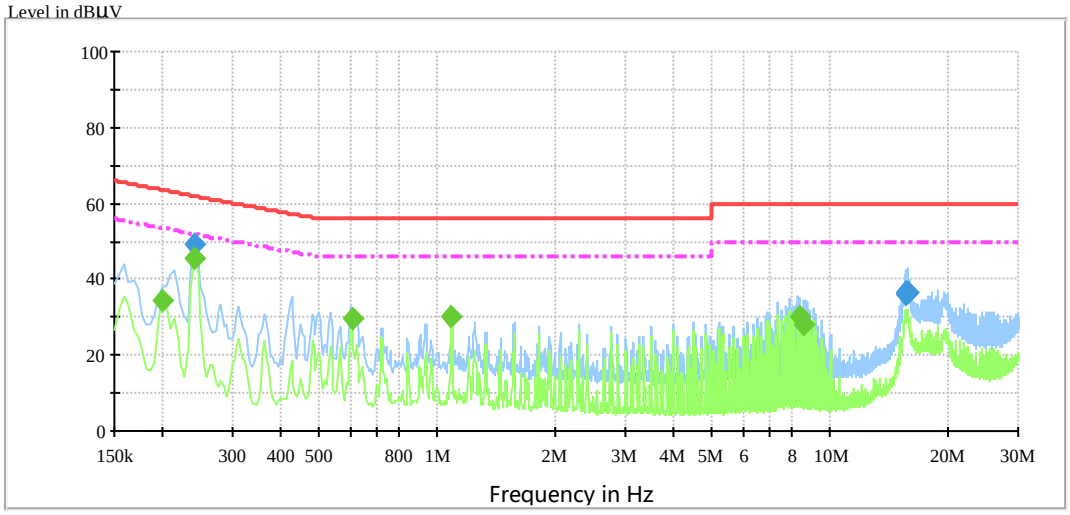
Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.195000	21.90	3.1	37.57	15.67	---	---
3.028373	5.87	-12.3	30.00	24.13	---	---
5.759693	6.27	-14.1	30.00	23.73	---	---
9.999998	15.66	-15.4	30.00	14.34	---	---

Measurement Result: AV Detector

Frequency MHz	Level (dBµA)	Transd dB	Limit (dBµA)	Margin dB	Line	PE
0.195000	20.39	3.1	27.46	7.07	---	---
5.370150	3.36	-13.9	20.00	16.64	---	---
5.764193	0.38	-14.1	20.00	19.62	---	---
9.999998	15.48	-15.4	20.00	4.52	---	---

Note:
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.14 -48V DC Power Port Test Data of TC1~TC10



Measurement Result: QP Detector

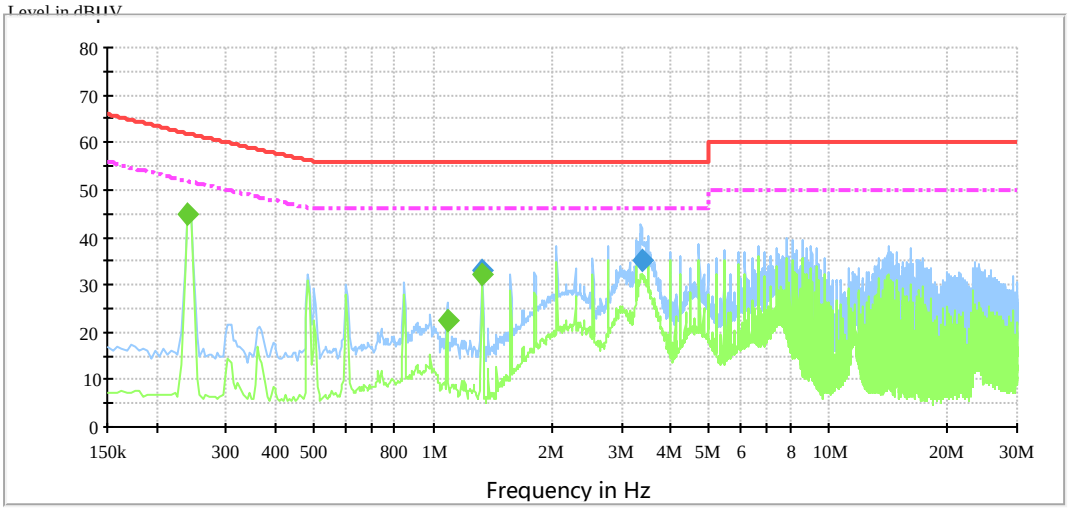
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.240000	49.4	10.5	61.9	12.5	N	GND
15.529800	36.0	10.5	60.0	24.0	N	GND
15.596872	36.7	10.5	60.0	23.3	N	GND
15.605805	36.5	10.4	60.0	23.5	L3	GND
15.664485	36.8	10.5	60.0	23.2	N	GND
15.695602	36.4	10.4	60.0	23.6	L3	GND

Measurement Result: AV Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.199500	34.3	10.5	53.5	19.1	N	GND
0.240000	45.6	10.5	51.9	6.2	N	GND
0.604500	29.4	10.4	46.0	16.6	L3	GND
1.085070	30.0	10.4	46.0	16.0	L3	GND
8.311935	30.0	10.5	50.0	20.0	N	GND
8.558198	28.1	10.5	50.0	21.9	N	GND

Note:
1. Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configurations TC1 to TC10 were tested, and the worst test result is supplied.

10.2.15 -48V DC Power Port Test Data of TC11-TC14,TC16-TC17



Measurement Result: QP Detector

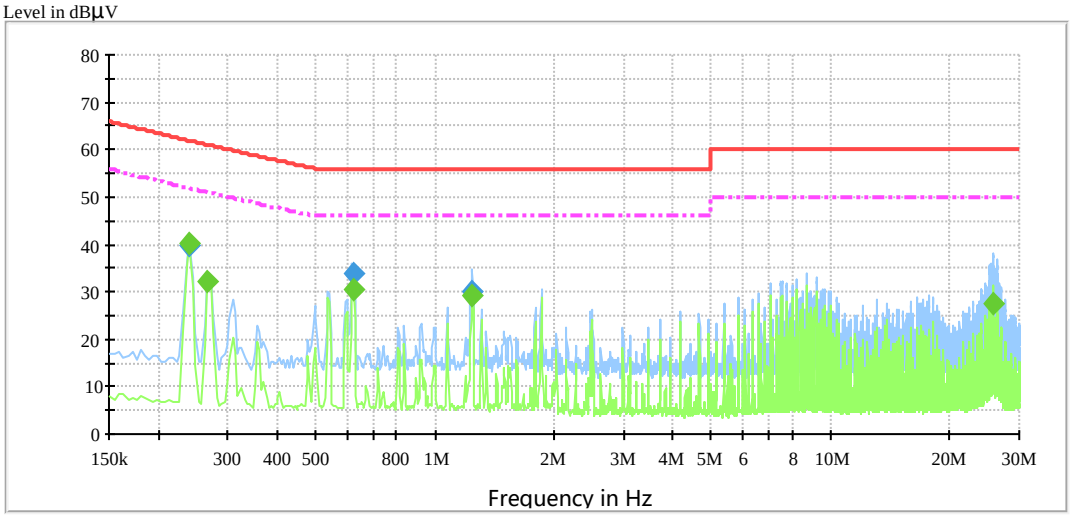
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
1.326855	32.8	10.1	56.0	23.2	N	GND
3.364185	35.3	10.1	56.0	20.7	L3	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	45.0	10.0	51.9	6.9	L3	GND
1.085070	22.6	10.1	46.0	23.4	N	GND
1.326855	32.1	10.1	46.0	13.9	N	GND

Note:
1. Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
2. The configurations TC11-TC14,TC16-TC17 were tested, and the worst test result is supplied.

10.2.16 -48V DC Power Port Test Data of TC15



Measurement Result: QP Detector

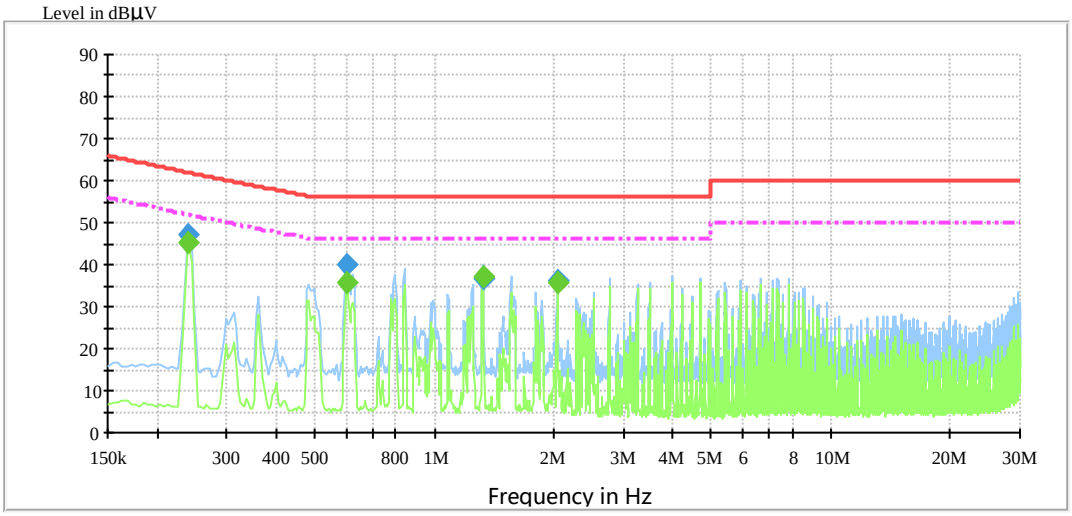
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	39.7	10.0	61.9	22.2	N	GND
0.622500	33.7	9.9	56.0	22.3	N	GND
1.240096	29.9	10.1	56.0	26.1	N	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	40.1	10.0	51.9	11.7	N	GND
0.267000	32.2	10.0	51.0	18.8	N	GND
0.622500	30.6	9.9	46.0	15.4	N	GND
1.244573	29.4	10.1	46.0	16.6	N	GND
25.816424	27.6	10.4	50.0	22.4	N	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.17 -48V DC Power Port Test Data of TC18-TC19



Measurement Result: QP Detector

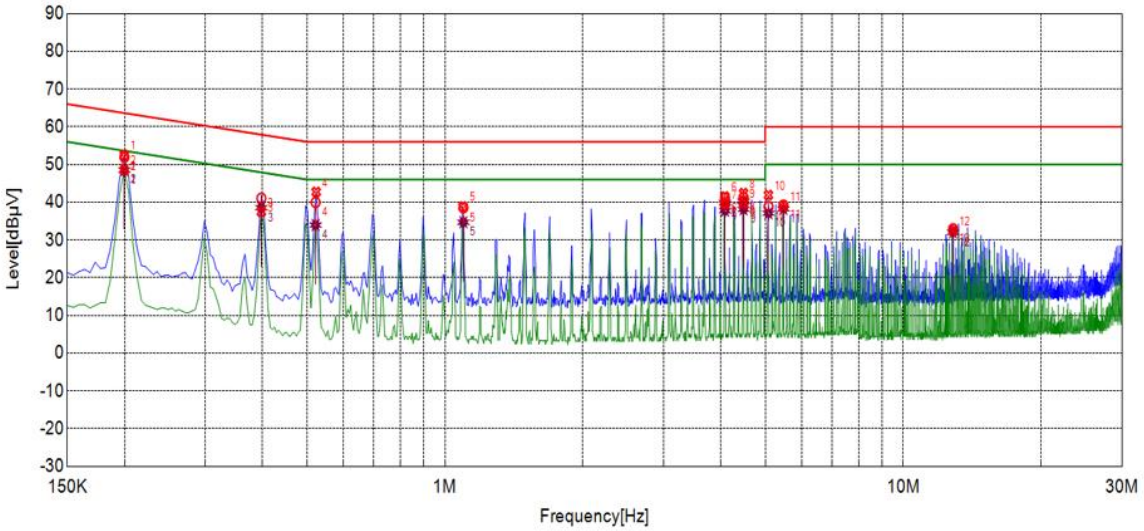
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	47.4	10.0	61.9	14.5	N	GND
0.600000	39.8	10.1	56.0	16.2	L3	GND
1.326878	36.6	10.1	56.0	19.4	L3	GND
2.047755	36.1	10.1	56.0	19.9	L3	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	45.3	10.0	51.9	6.5	N	GND
0.600000	35.5	10.1	46.0	10.5	L3	GND
1.326878	37.4	10.1	46.0	8.6	N	GND
2.047778	35.6	10.1	46.0	10.4	L3	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
Both TC18-TC19 were tested, and the worse test result was supplied.

10.2.18 -48V DC Power Port Test Data of TC20



Measurement Result: QP Detector

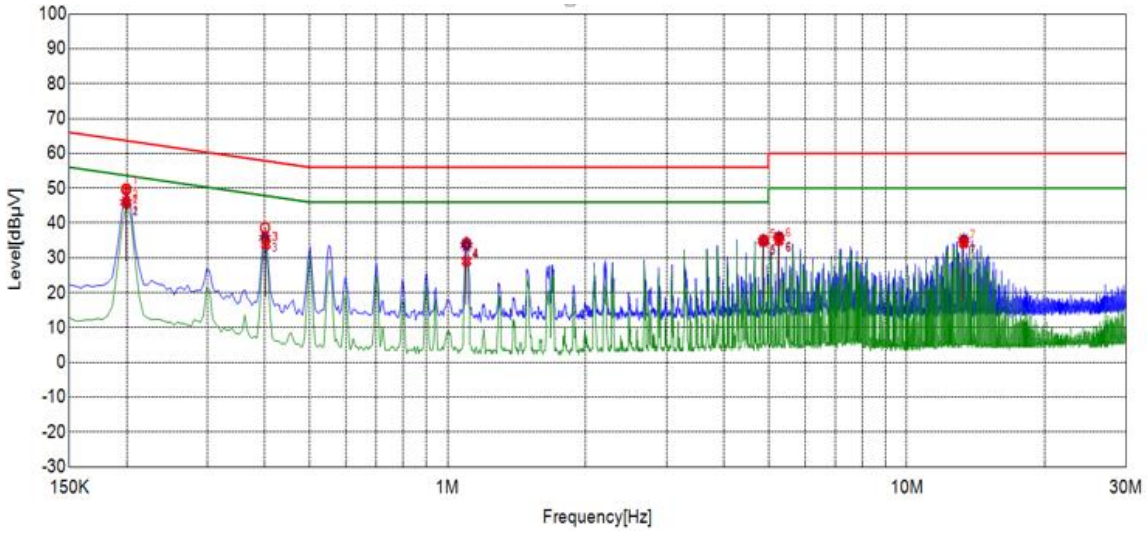
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.1997	51.95	10.33	63.62	11.67	L3	GND
0.1993	52.03	10.33	63.64	11.61	L3	GND
0.3973	41.07	10.08	57.91	16.84	L3	GND
0.5220	39.95	9.97	56.00	16.05	L3	GND
1.0971	38.55	9.96	56.00	17.45	L3	GND
4.0848	41.16	9.77	56.00	14.84	L3	GND
4.0866	39.43	9.77	56.00	16.57	L3	GND
4.4835	41.24	9.78	56.00	14.76	L3	GND
4.4853	39.72	9.78	56.00	16.28	L3	GND
5.0834	38.82	9.93	60.00	21.18	L3	GND
5.4806	39.22	9.73	60.00	20.78	L3	GND
12.8514	32.95	9.86	60.00	27.05	L3	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.1997	48.53	10.33	53.62	5.09	L3	GND
0.1993	48.60	10.33	53.64	5.04	L3	GND
0.3973	38.56	10.08	47.91	9.35	L3	GND
0.5220	33.95	9.97	46.00	12.05	L3	GND
1.0971	34.69	9.96	46.00	11.31	L3	GND
4.0848	39.90	9.77	46.00	6.10	L3	GND
4.0866	37.74	9.77	46.00	8.26	L3	GND
4.4835	40.30	9.78	46.00	5.70	L3	GND
4.4853	38.11	9.78	46.00	7.89	L3	GND
5.0834	37.07	9.93	50.00	12.93	L3	GND
5.4806	38.23	9.73	50.00	11.77	L3	GND
12.8514	32.01	9.86	50.00	17.99	L3	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.19 -48V DC Power Port Test Data of TC21



Measurement Result: QP Detector

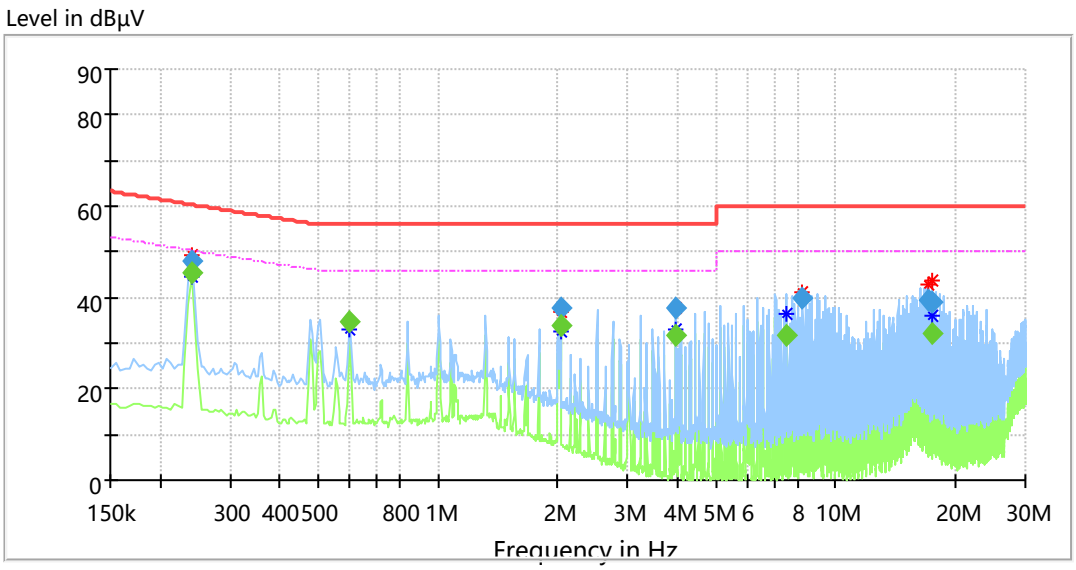
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.1993	49.57	10.33	63.64	14.07	L3	GND
0.1996	49.60	10.33	63.63	14.03	L3	GND
0.4002	38.70	10.20	57.85	19.15	L3	GND
1.0988	34.17	9.96	56.00	21.83	L3	GND
4.8746	35.06	9.94	56.00	20.94	L3	GND
5.2721	35.89	9.88	60.00	24.11	L3	GND
13.3171	34.86	9.77	60.00	25.14	L3	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.1993	45.99	10.33	53.64	7.65	L3	GND
0.1996	46.12	10.33	53.63	7.51	L3	GND
0.4002	35.78	10.20	47.85	12.07	L3	GND
1.0988	33.64	9.96	46.00	12.36	L3	GND
4.8746	34.93	9.94	46.00	11.07	L3	GND
5.2721	35.77	9.88	50.00	14.23	L3	GND
13.3171	35.16	9.77	50.00	14.84	L3	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.20 -48V DC Power Port Test Data of TC22



Measurement Result: QP Detector

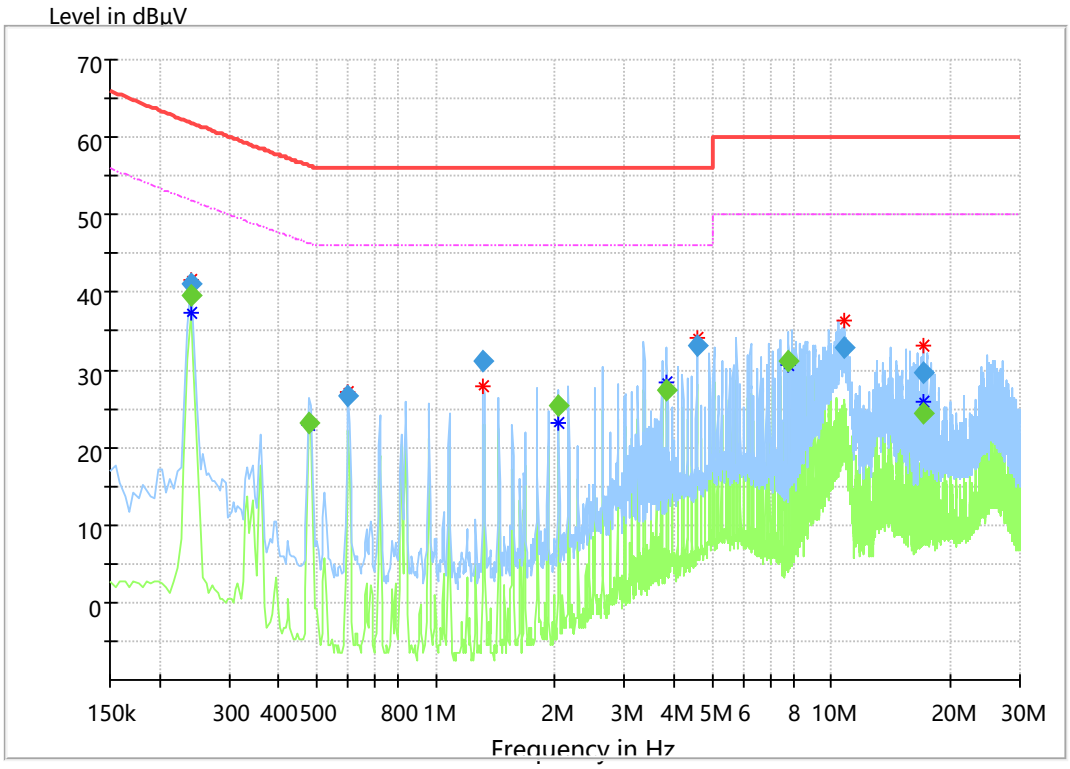
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	48.06	0.0	60.36	12.30	N	GND
2.034323	37.52	0.1	56.00	18.48	N	GND
3.950738	37.88	0.1	56.00	18.12	N	GND
8.267160	39.73	0.2	60.00	20.27	N	GND
17.011988	39.57	0.4	60.00	20.43	L1	GND
17.486603	38.94	0.4	60.00	21.06	L1	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	45.41	0.0	50.32	4.90	N	GND
0.600000	34.51	0.1	46.00	11.49	N	GND
2.034323	33.86	0.1	46.00	12.14	N	GND
3.955238	31.84	0.1	46.00	14.16	N	GND
7.550805	31.51	0.2	50.00	18.49	N	GND
17.491103	32.03	0.4	50.00	17.97	L1	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.

10.2.21 -48V DC Power Port Test Data of TC23-TC26&TC28



Measurement Result: QP Detector

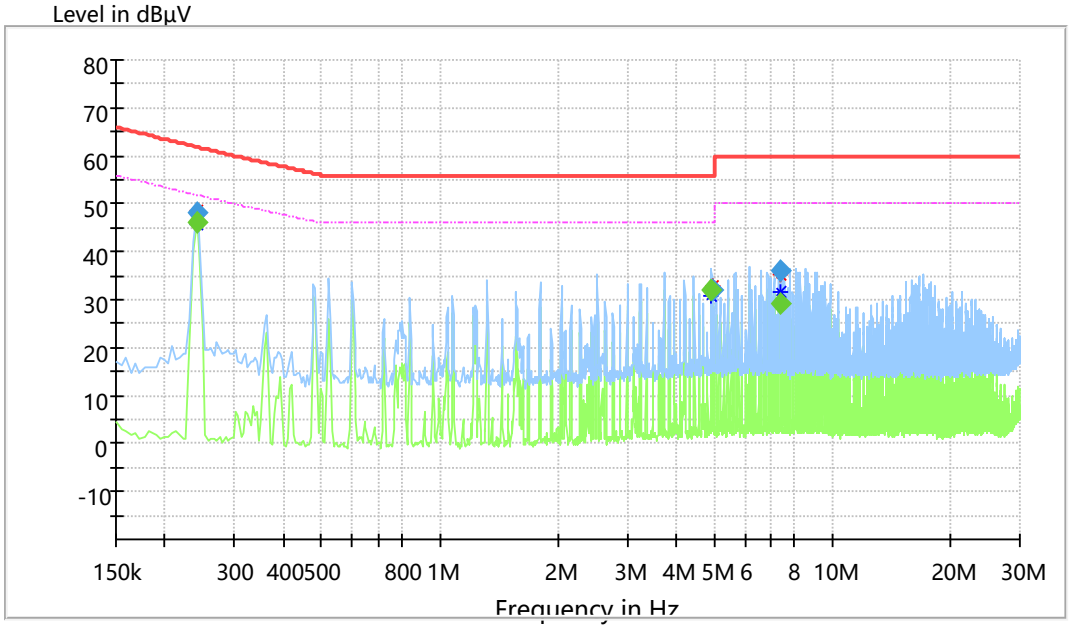
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	41.21	0.0	61.90	20.68	N	GND
0.600000	26.53	0.1	56.00	29.47	N	GND
1.322400	31.21	0.1	56.00	24.79	N	GND
4.568678	33.21	0.1	56.00	22.79	N	GND
10.751993	32.97	0.3	60.00	27.03	N	GND
17.079173	29.74	0.4	60.00	30.26	N	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	39.48	0.0	51.86	12.39	N	GND
0.478500	23.21	0.1	46.33	23.12	N	GND
2.043278	25.38	0.1	46.00	20.62	N	GND
3.847778	27.39	0.1	46.00	18.61	N	GND
7.810433	31.01	0.2	50.00	18.99	N	GND
17.056695	24.45	0.4	50.00	25.55	N	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
Both TC23-TC26&TC28 were tested, and the worst test result was supplied.

10.2.22 -48V DC Power Port Test Data of TC27 & TC31-TC37



Measurement Result: QP Detector

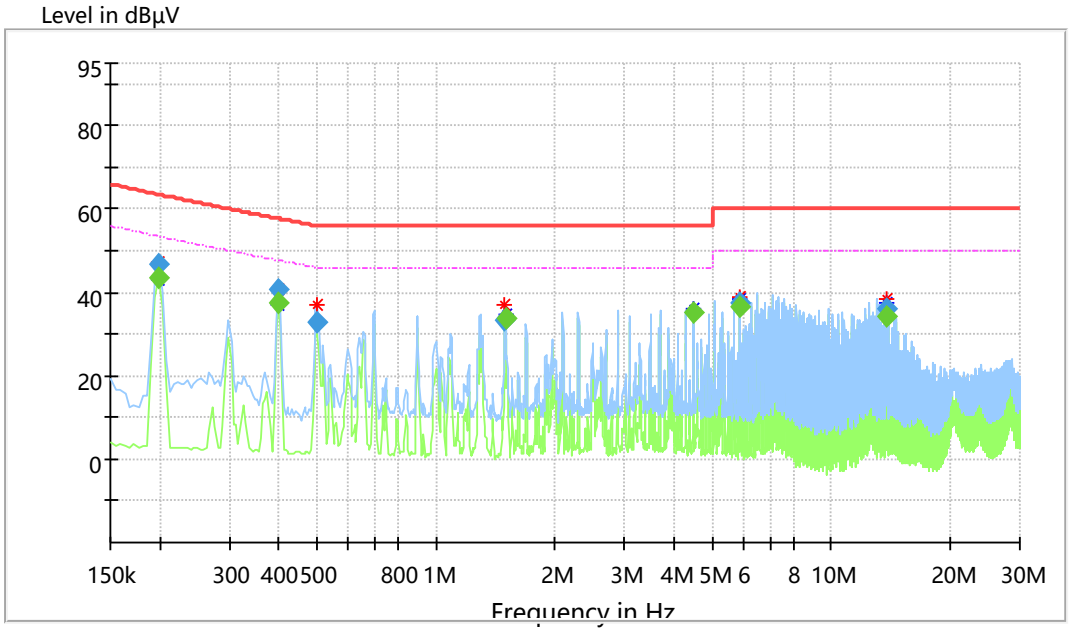
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	48.32	0.1	61.90	13.58	L2	GND
4.931378	31.99	0.2	56.00	24.01	L3	GND
7.335840	35.97	0.1	60.00	24.03	L2	GND

Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.240000	46.16	0.1	51.86	5.70	L2	GND
4.926855	31.94	0.1	46.00	14.06	L2	GND
7.331318	29.14	0.1	50.00	20.86	L3	GND

Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
TC27 & TC31-TC37 were tested, and the worst test result was supplied.

10.2.23 -48V DC Power Port Test Data of TC29&TC30



Measurement Result: QP Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.199500	46.92	0.2	63.48	16.56	L3	GND
0.397500	40.52	0.2	57.78	17.26	L3	GND
0.501000	33.05	0.2	56.00	22.95	L3	GND
1.492523	33.46	0.2	56.00	22.54	L3	GND
5.885085	37.71	0.2	60.00	22.29	L3	GND
13.814918	35.99	0.2	60.00	24.01	L3	GND

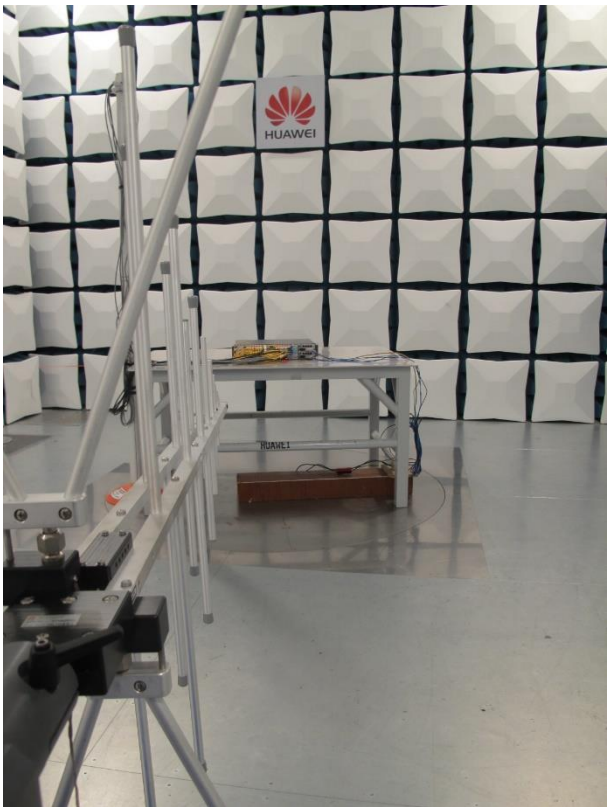
Measurement Result: AV Detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBµV	dB	dBµV	dB		
0.199500	43.31	0.2	53.45	10.14	L3	GND
0.397500	37.27	0.2	47.76	10.49	L3	GND
1.497023	33.61	0.2	46.00	12.39	L3	GND
4.488060	35.13	0.2	46.00	10.87	L3	GND
5.885085	36.46	0.2	50.00	13.54	L3	GND
13.819418	34.14	0.3	50.00	15.86	L2	GND

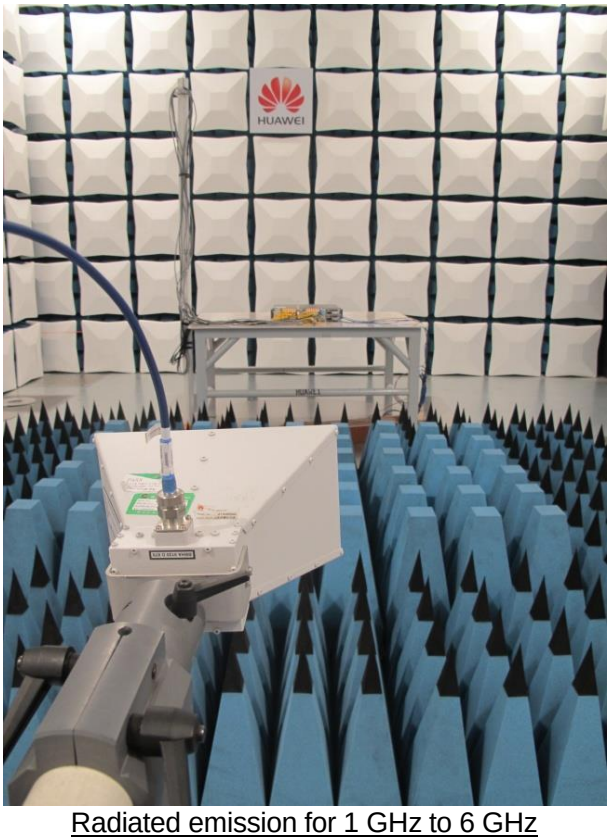
Note:
Margin=Limit-Level
Level= Reading level+ Transd (cable loss + correction factor)
The reading level is used to calculate by software which is not shown in the sheet.
Both T29&TC30 were tested, and the worse test result was supplied.

11 Photographs of Test Set-up

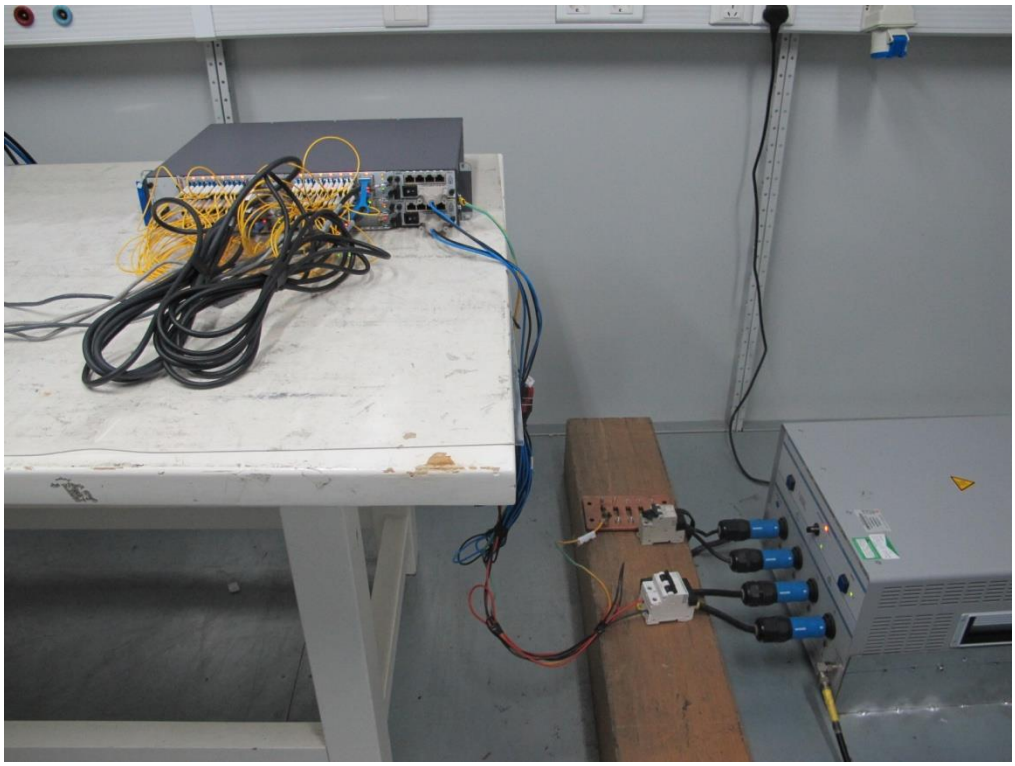
11.1 Emissions



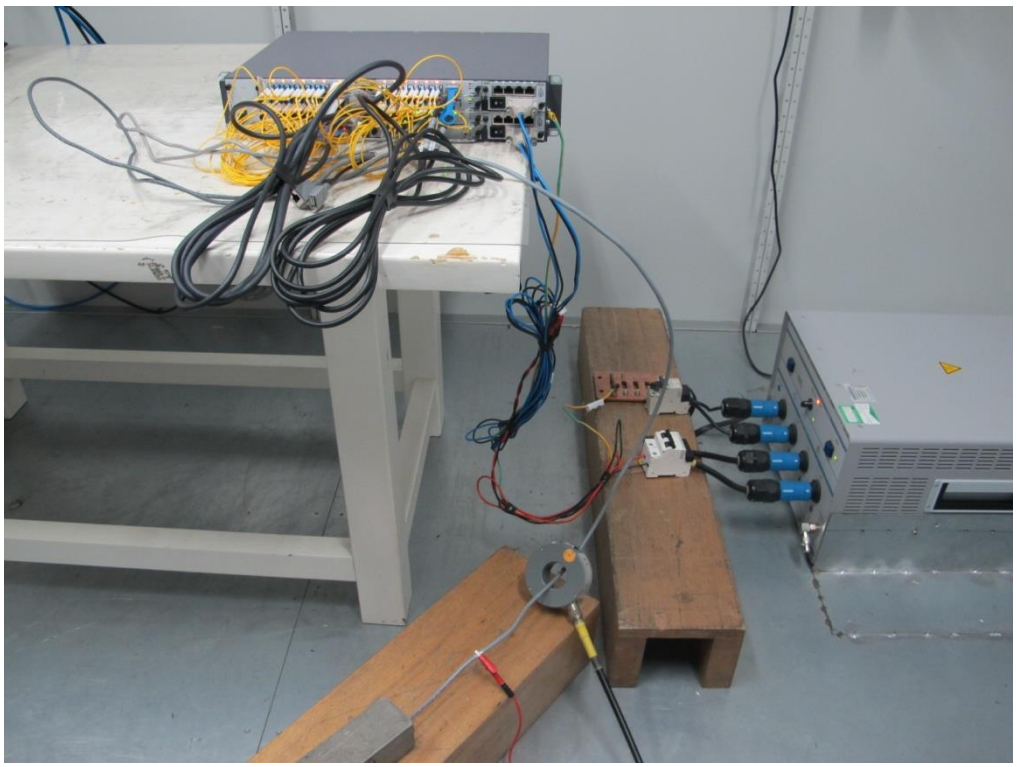
Radiated Disturbance (30MHz-1GHz)



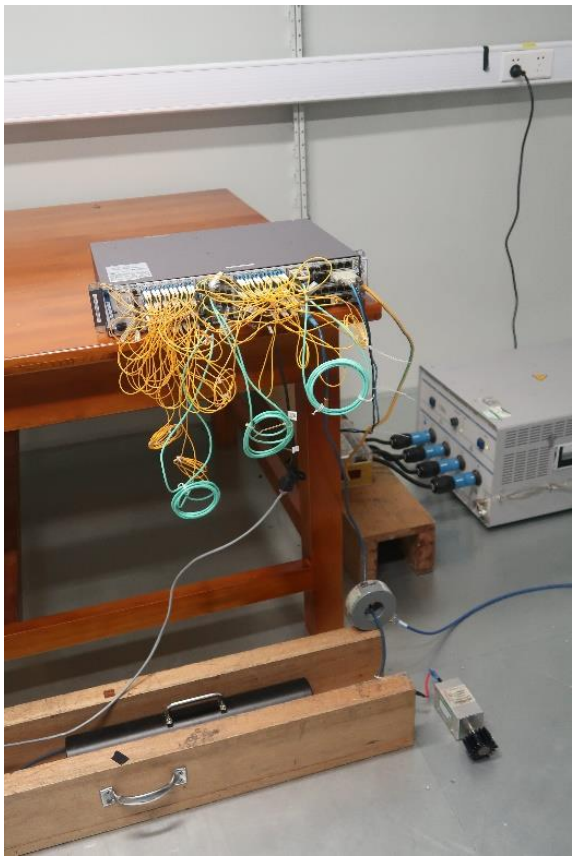
Radiated emission for 1 GHz to 6 GHz



Conducted emissions of DC power port

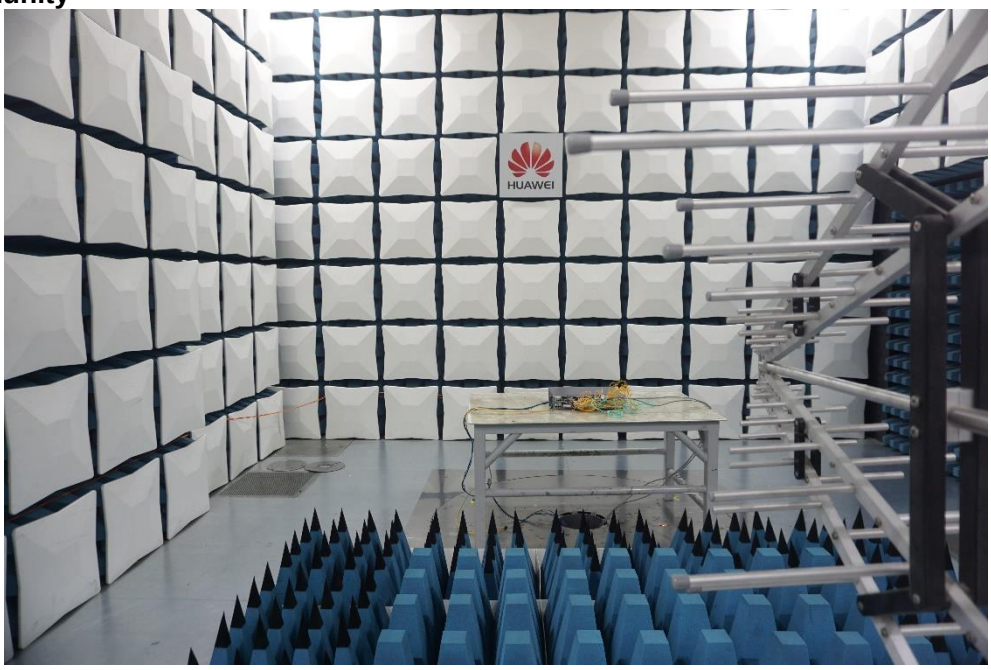


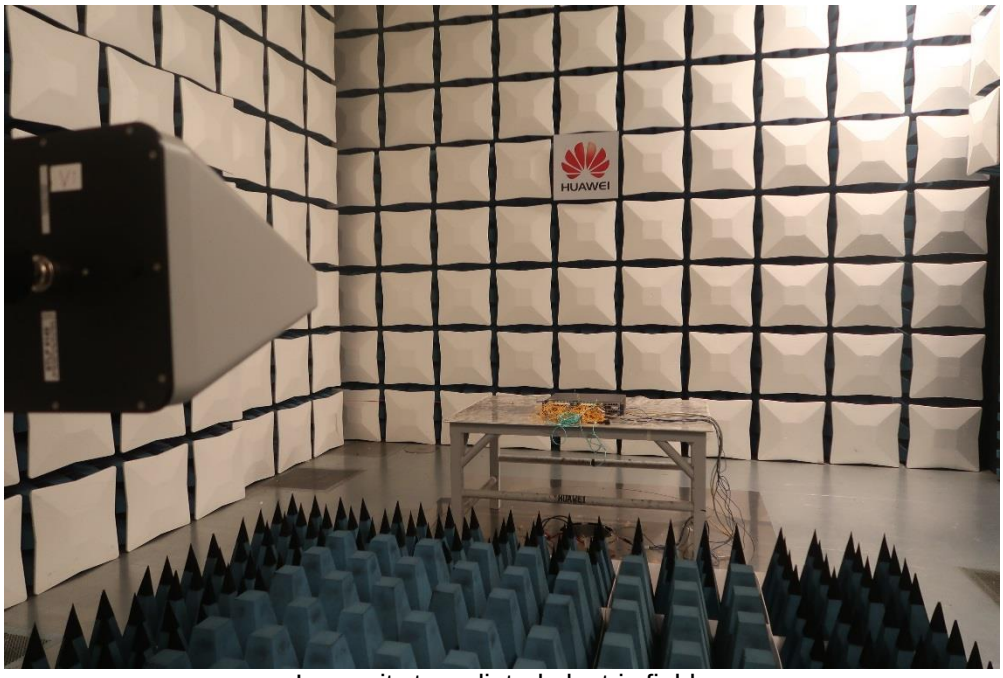
Conducted emissions of wired network port



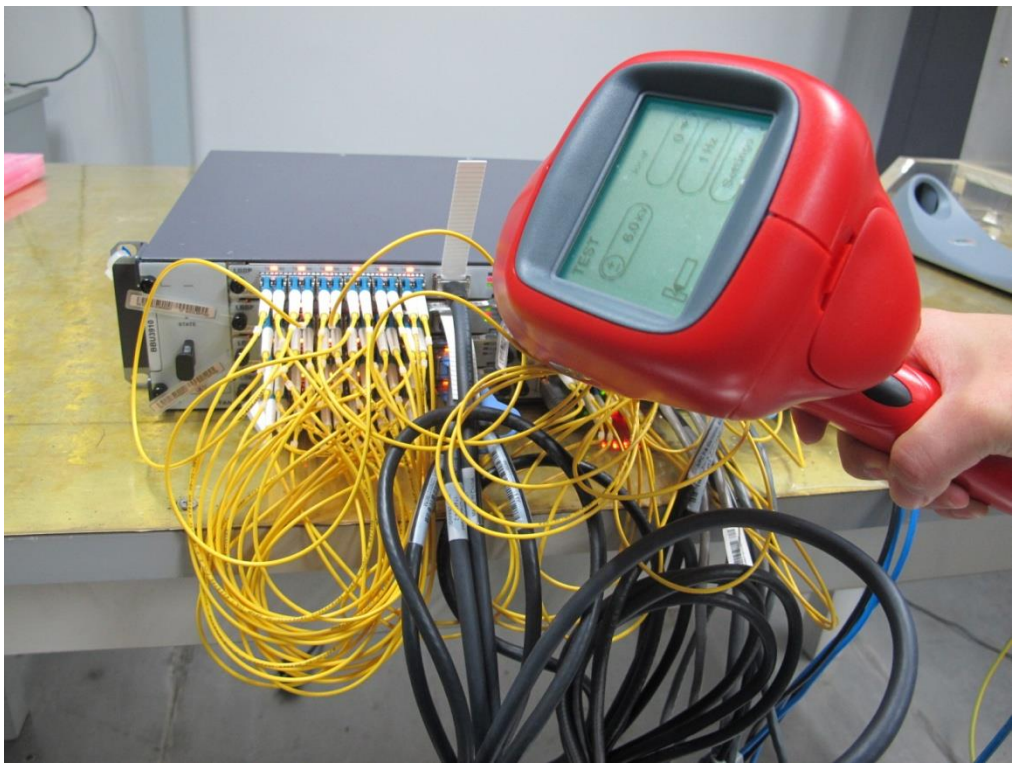
Conducted emissions of antenna port

11.2 Immunity





Immunity to radiated electric fields



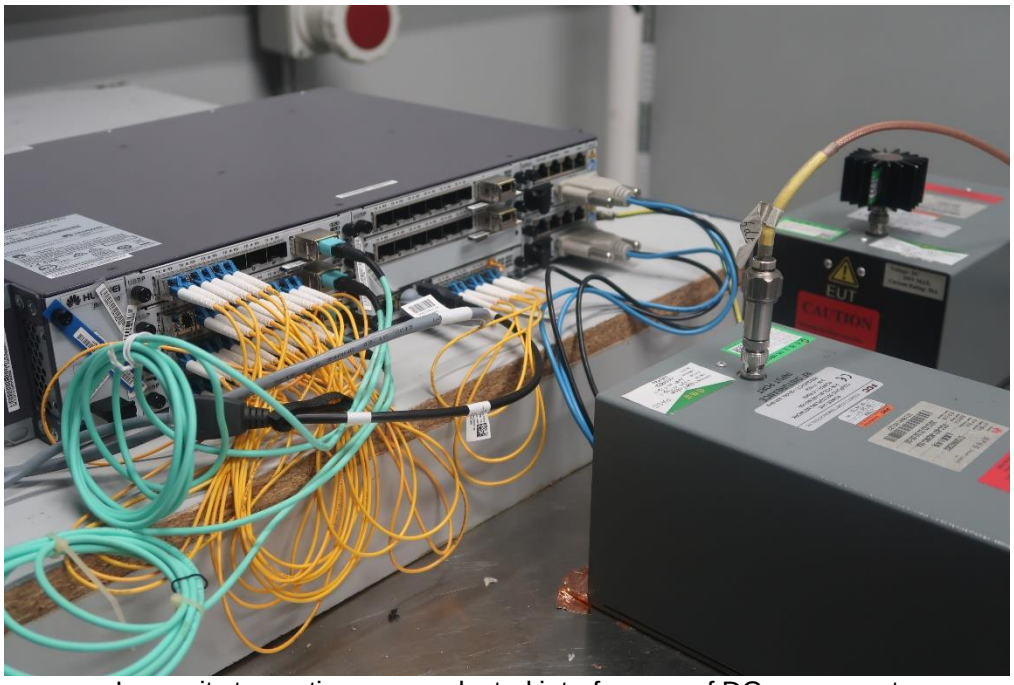
Electrostatic discharge

Immunity to electrical fast transient bursts of DC power port

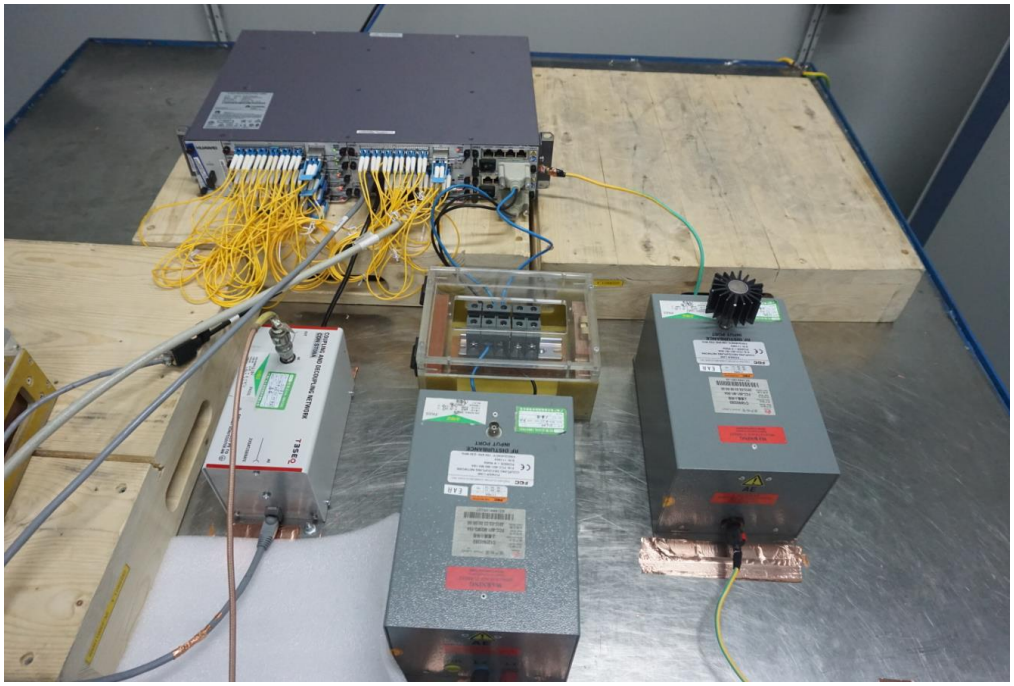
Immunity to electrical fast transient bursts of signal port

Immunity to surges of DC power port

Immunity to surges of signal port



Immunity to continuous conducted interference of DC power port



Immunity to continuous conducted interference of signal port

Immunity to voltage dips, short interruption and voltage variation of DC power port

Appendix: Abbreviation

Table 28 Abbreviation

Abbreviation	Full Name
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMS	Electromagnetic Susceptibility
ESD	Electrostatic Discharge
EUT	Equipment Under Test
AE	Auxiliary Equipment
DC	Direct Current
NSA	Normalized Site Attenuation
S_{VSWR}	Site Voltage Standing Wave Ratio
LISN	Line Impedance Stabilization Network
ISN	Impedance Stabilization Network
CDN	Coupling and Decoupling Network
TC	Test Configuration
NT	Not Test
N/A	Not Applicable
RMS	Root Mean Square

END